SECTION II—PETROLEUM

Oil, Paint and Drug Reporter

Vol. 100. No. 28 MONDAY, DECEMBER 12, 1921 100 William St., New York

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THE CHEMISTS CLUB
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DMC

No. 2 Black Steel Barrel
Meets requirements of I. C. C. Specification No. 5

Get Ready for 1922—

No. 6 Black Steel Barrel
Made to meet requirements of I. C. C. Specifications No. 5 or 5A

ONE of America's biggest oil men is quoted as saying:

> Demand for petroleum products is very strong. There has been a wonderful turnover in the situation compared with a few months ago. Production is now under demand and stocks are being drawn upon in the United States, whereas, a few months ago, storage was increasing tremendously.

Promise for 1922 is all one way—improvement.

We are preparing for a bigger demand from the petroleum trade for our steel barrels. And we'll make this promise to that trade: We'll keep pace with the demand, no matter what the increase.

Try us and see!

"What the Shipper Puts In the Customer Takes Out"

Our No. 8 Catalogue Just Fits Your Pocket

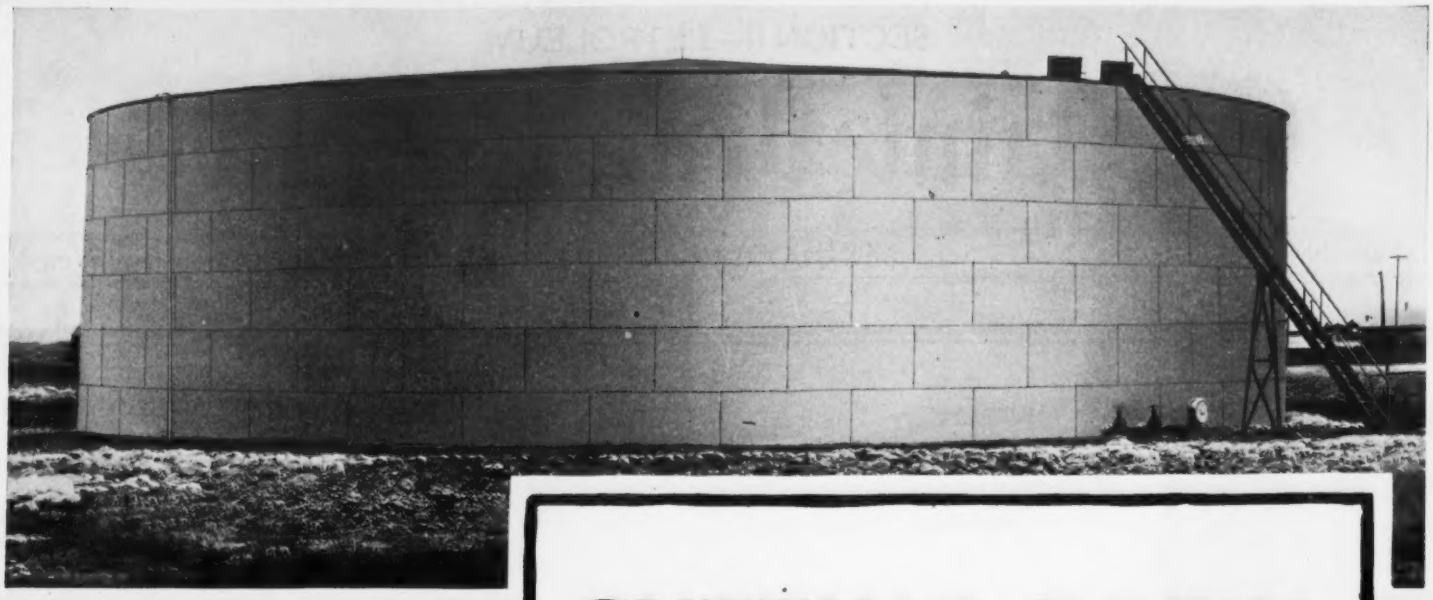
THE DRAPER MFG. CO.

E. 91st Street and Crane Avenue, Cleveland, Ohio
Cable Address—"DRAPER" Cleveland, U. S. A. Western Union Code

District Sales Offices:

NEW ORLEANS, LA.—203 Pan-American Bldg., E. J. Putzell, District Sales Manager.

NEW YORK CITY—110 William Street, C. B. PETERS CO., Inc., Eastern Sales Representative.
CHICAGO, ILL.—128 N. Wells Street, AMCO SALES CORPORATION.
SAN FRANCISCO, CAL.—16 California Street, THE HALE CO.



CUTTING DOWN REFINERY LOSSES

At the 19th Annual Meeting of the National Petroleum Association held in Atlantic City, Sept. 21st, 22nd and 23rd, the report of the manufacturing committee to the convention included the following:

"There are certain losses in refining which cannot be overcome, but few if any refiners have their refining losses cut to the minimum. The principal causes of excessive losses are defective tanks, including non-gas-proof roofs, defective piping and leaking pumps, condensers too hot while volatile vapors are passing through the coils, carelessness in treating volatile products by excessive blowing or in drawing off chemicals and water, lack of properly constructed and a sufficient number of catch boxes to reclaim oils from waste water.

"Tanks which are not absolutely tight are indeed expensive equipment. Volatile products such as gasoline and naphtha, when stored in poorly constructed tanks, may not give visible evidence of leakage, because these products, when coming through defective seams or around poor rivets, evaporate so rapidly as to be hardly observable. The vapors from these products will pass through defective tank roofs and be barely noticeable. These losses of gasoline and naphtha in the average refinery through defective tanks constitute a very appreciable item when considered over a year."

P. I. W. tanks are built tight and stay tight. For more than 28 years the oil trade has recognized the P. I. W. storage tank as *the tank without a defect.*

To secure an additional big saving in low insurance rates, this company further recommends self-closing gas tight gauges and geared windlasses with cable guides—and a careful study and close adherence to P. I. W. Tank Specifications.

P.I.W.
STEEL PLATE CONSTRUCTION

THE PETROLEUM IRON WORKS COMPANY

SHARON, PENNSYLVANIA

New York St. Louis Houston Tampico San Francisco

SECTION II—PETROLEUM

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	Gasoline: Tank Wagon, Gal.	Gasoline: Service Station, Gal.	Kerosene, Gal.
Aberdeen, S. D.	22.8c.	23.8c.	13.7c.
Albany, N. Y.	28c.	30c.	16c.
Albuquerque, N. M.	26c.	28c.	19.5c.
Allentown, Pa.	21c.	24c.	11c.
Annapolis, Md.	25c.	27c.	13.5c.
Atlantic City	25c.	27c.	14c.
Atlanta, Ga.	25c.	27c.	15c.
Augusta, Ga.	24c.	26c.	15c.
Augusta, Maine	28c.	30c.	15c.
Baltimore	24c.	26c.	12.5c.
Bartlesville, Okla.	18.5c.	19.5c.	10.8c.
Basin, Wyo.	21.5c.	23.5c.	15.5c.
Battle Creek, Mich.	21.9c.	22.9c.	12.9c.
Bay City, Mich.	21.9c.	22.9c.	12.9c.
Beaumont, Texas	21c.	23c.	13c.
Billings, Mont.	25c.	27c.	17.5c.
Binghamton, N. Y.	28c.	30c.	16c.
Birmingham, Ala.	24c.	26c.	15c.
Bismarck, N. D.	26.6c.	28.6c.	16.4c.
Boise, Idaho	27.5c.	29.5c.	21c.
Boston	28c.	30c.	16c.
Bowling Green, Ky.	23c.	25c.	13c.
Bridgeport, Conn.	27c.	30c.	16c.
Buffalo	28c.	30c.	16c.
Burlington, Vt.	27c.	29c.	17c.
Butte, Mont.	27c.	29c.	19.7c.
Canadian points (Imperial gallons, 1.2 U. S. gal.):—			
Calgary	43c.	47c.	28.5c.
Montreal	32c.	37c.	19.5c.
Toronto	31c.	35c.	17.5c.
Winnipeg	34c.	38c.	19.5c.
Casper, Wyo.	19c.	21c.	13.5c.
Charleston, S. C.	21.5c.	23.5c.	12c.
Charleston, W. Va.	25c.	27.5c.	14c.
Charlotte, N. C.	25.5c.	28.5c.	14c.
Chattanooga, Tenn.	23c.	25c.	14c.
Cheyenne, Wyo.	21.5c.	23.5c.	15c.
Chicago	19.5c.	21.5c.	11.5c.
Cincinnati, Ohio	22c.	23c.	14c.
Clarksdale, Miss.	22.5c.	24.5c.	13.5c.
Cleveland, Ohio	22c.	23c.	14c.
Cody, Wyo.	23.5c.	25.5c.	17.5c.
Columbia, S. C.	23.5c.	24.5c.	14c.
Columbus, Ohio	21c.	22c.	13c.
Covington, Ky.	22c.	24c.	14.5c.
Dallas, Texas	19c.	23c.	13c.
Danville, Va.	24c.	26c.	14.5c.
Davenport, Iowa	21.2c.	22.2c.	12.3c.
Dayton, Ohio	22c.	23c.	14c.
Denver, Colo.	22.5c.	24.5c.	16c.
Des Moines, Iowa	21.2c.	22.2c.	12.3c.
Detroit, Mich.	21.4c.	22.4c.	12.7c.
Dover, Del.	25c.	28c.	16c.
Duluth, Minn.	22.2c.	23.2c.	13.1c.
East St. Louis, Ill.	20.9c.	22.9c.	11.1c.
El Dorado, Kans.	21.7c.	—	17.2c.
El Paso, Texas	21c.	24c.	13c.
Ely, Minn.	23.3c.	—	13.1c
Erie, Pa.	24c.	26c.	13c.
Evansville, Ind.	20.9c.	21.9c.	12.3c.
Fargo, N. D.	24.6c.	25.6c.	14.8c.
Fort Myers, Fla.	29.5c.	31.5c.	17.5c.
Fort Smith, Ark.	20c.	22c.	12c.
Fort Wayne, Ind.	21.3c.	22.3c.	12.7c.
Fort Worth, Texas	19c.	23c.	13c.
Fresno, Cal.	21.5c.	23.5c.	17c.
Galveston, Texas	16c.	20c.	10c.
Glenwood Springs, Colo.	27.5c.	29.5c.	21c.
Grand Forks, N. D.	23.9c.	25.9c.	15.1c.
Great Falls, Mont.	27c.	29c.	19.5c.
Grand Rapids, Mich.	21.4c.	22.4c.	12.7c.
Harrisburg, Pa.	21c.	24c.	11c.
Hartford, Conn.	28c.	31c.	16c.
Helena, Mont.	27c.	29c.	19.5c.
Hickory, N. C.	27c.	27c.	14c.
Honolulu, T. H.	22.5c.	24.5c.	—
Houston, Texas	21c.	23c.	13c.
Huron, S. D.	22.7c.	23.7c.	13.7c.
Indianapolis, Ind.	21.1c.	23.1c.	12.5c.
Jackson, Miss.	22.5c.	24.5c.	13.5c.
Jacksonville, Fla.	23c.	25c.	13c.
Jamestown, N. Y.	28c.	30c.	16c.
Jefferson City, Mo.	19c.	21.4c.	12.7c.
Joliet, Ill.	21.1c.	22.1c.	12.6c.
Joplin, Mo.	17c.	18c.	12.8c.
Juneau, Alaska	24.5c.	26.5c.	—
Kansas City, Kan.	18.2c.	19.2c.	10.5c.
Kansas City, Mo.	18.2c.	19.2c.	10.5c.
Keokuk, Iowa	21.2c.	22.2c	12.3c.
Keyser, W. Va.	25c.	27c.	13.5c.
La Crosse, Wis.	21c.	22c.	13.2c.
Lander, Wyo.	20c.	22c.	13.2c.
Lexington, Ky.	23c.	25c.	13c.
Little Rock, Ark.	18c.	20c.	11c.
Los Angeles, Cal.	21c.	23c.	14.5c.
Louisville, Ky.	22c.	24c.	13c.
Macon, Ga.	24c.	26c.	15c.
Madison, Wis.	21c.	22c.	12c.
Manchester, N. H.	27c.	29c.	16c.
Mankato, Minn.	21.8c.	22.8c.	13.1c.
McCook, Neb.	22.75c.	22.75c.	14.25c.
Memphis, Tenn.	21.5c.	23.5c.	12c.
Miami, Fla.	26c.	28c.	16c.
Miles City, Mont.	27c.	29c.	19.5c.
Milwaukee, Wis.	21c.	22c.	12.1c.
Minneapolis, Minn.	21.8c.	23.8c.	13.1c.
Minot, N. D.	21.8c.	22.8c.	13.1c.
Mobile, Ala.	21c.	23c.	13.5c.
Montgomery, Ala.	23c.	25c.	15.5c.
Mt. Airy, N. C.	25c.	27c.	14.5c.
Nashville, Tenn.	22c.	25c.	12.5c.
Natchez, Miss.	22c.	24c.	13.5c.
Newark, N. J.	25c.	27c.	13c.
New Haven, Conn.	28c.	31c.	16c.
New London, Conn.	27c.	30c.	16c.
New Orleans, La.	20.5c.	22.5c.	11c.
New York City	27c.	30c.	15c.
Norfolk, Neb.	22.75c.	22.75c.	13c.
Norfolk, Va.	24c.	26c.	13c.
Ogden, Utah	25.5c.	27.5c.	18.5c.
Oklahoma City, Okla.	21c.	23c.	13c.
Omaha, Neb.	22c.	22c.	12.5c.
Parkersburg, W. Va.	23.5c.	24.5c.	12.5c.
Pensacola, Fla.	23c.	25c.	13.5c.
Peoria, Ill.	21.1c.	22.7c.	12.3c.
Petersburg, Va.	24c.	26c.	13.5c.
Philadelphia, Pa.	25c.	28c.	16c.
Phoenix, Ariz.	26.5c.	28.5c.	21.5c.
Pipestone, Minn.	21.8c.	27.8c.	13c.
Pittsburgh, Pa.	25c.	28c.	16c.
Ponca City, Okla.	19c.	21c.	11c.
Portland, Maine	23c.	25c.	15c.
Portland, Ore.	24c.	26c.	15.5c.
Providence, R. I.	28c.	31c.	16c.
Pueblo, Colo.	22.5c.	24.5c.	16c.
Quincy, Ill.	20c.	21c.	12.1c.
Reno, Nev.	25c.	27c.	18.5c.
Richmond, Va.	24c.	26c.	13c.
Roanoke, Va.	25c.	27c.	15c.
Rochester, N. Y.	25.5c.	28.5c.	16c.
St. Joseph, Mo.	19.8c.	20.8c.	11.6c.
St. Louis, Mo.	18.9c.	21.2c.	11.2c.
St. Paul, Minn.	21.2c.	23.2c.	12.1c.
Saginaw, Mich.	21.5c.	22.5c.	11.8c.
Salisbury, N. C.	25c.	27c.	14.5c.
Salt Lake City, Utah	25.5c.	27.5c.	18.5c.
San Francisco, Cal.	21c.	23c.	—
Savannah, Ga.	22c.	24c.	13c.
Scranton, Pa.	21c.	24c.	11c.
Seattle, Wash.	23c.	25c.	15.5c.
Shreveport, La.	21c.	24c.	11.5c.
Sioux City, Iowa	21.2c.	22.2c.	12.5c.
Sioux Falls, S. D.	22c.	24c.	13c.
South Bend, Ind.	21.2c.	22.2c.	12.6c.
Spokane, Wash.	27c.	29c.	20c.
Springfield, Mass.	28c.	31c.	16c.
Superior, Minn.	20.3c.	22.3c.	10.1c.
Syracuse, N. Y.	28c.	31c.	16c.
Tacoma, Wash.	23c.	25c.	15.5c.
Tampa, Fla.	23c.	25c.	13c.
Terrell, Texas	20c.	21c.	13c.
Texarkana, Ark.	20c.	23c.	13c.
Toledo, O.	22c.	23c.	14c.
Topeka, Kan.	19.1c.	21.1c.	11.1c.
Trenton, N. J.	25c.	27c.	13c.
Tulsa, Okla.	21c.	24c.	13c.
Utica, N. Y.	28c.	30c.	15c.
Vicksburg, Miss.	22c.	24c.	13.5c.
Virginia, Minn.	21.2c.	23.2c.	11c.
Warren, Pa.	21c.	24c.	11c.
Washington, D. C.	24c.	26c.	13c.
Wheeling, W. Va.	24c.	26c.	14c.
Wichita, Kan.	19c.	20c.	11c.
Wilkes-Barre, Pa.	21c.	24c.	11c.
Wilmington, Del.	25c.	28c.	13c.
Worcester, Mass.	28c.	31c.	16c.

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Care Lubric Oil Company - - - - Cleveland
1202 Arcade Building - - - - - - - St. Louis
Care Crew Levick Company - - Philadelphia
W. T. Waggoner Building - - - - Ft. Worth
1107 Carondelet Building - - - New Orleans
60 Wall Street - - - - - - - - - New York
Care Bartles Oil Company - - - - St. Paul

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Empire Refineries, Inc.

SUBSIDIARY CITIES SERVICE CO

GENERAL SALES OFFICES: TULSA, OKLA.

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Many a warehouse is soaked with various products from leaky, broken packages.

And no matter who stands the claim, the manufacturer pays in the end, through wasted goods and lost business.

Perfect Metal Bilge Barrels Prevent Waste—Save Loss

We need not make a single claim to prove enormous savings by the use of *Perfect Metal Bilge Barrels.* Our customers will prove our case for us.

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FISKE BROTHERS REFINING COMPANY says: "Shipping 2,000 barrels per month, the saving is from $4,000 to $5,000 per month. This enables us to make our customers better prices because our barrel cost is lower."

T. M. B. MASTIC FLOORING people say: "As our product hardens by evaporation it is necessary that containers be absolutely air-tight—the investment in Perfect Barrels is a decided saving the first year, to say nothing of years to follow."

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Detroit, Michigan

NEW YORK CHICAGO PHILADELPHIA ST. LOUIS SAN FRANCISCO

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Cheaper in price than blended oils.

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"A" Heavy
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FFM

Extra Filtered, high test, heavy bodied oil
FOR THE FANCY TRADE

CONEWANGO REFINING COMPANY

WARREN, PA. Cable Address "Conewango"

Makers of Fine Oils

Crude and Refined Petroleum Prices for Week Ending December 10, 1921

CRUDE AT WELLS

The following prices are those paid by the pipelines for crude as delivered from the wells, with a comparison for the corresponding period of 1920:—

Pennsylvania-Ohio-West Virginia

	1921.	1920
Cabell, W. Va.....℔ bbl.	$2.61	$4.46
Corning, Ohio	2.15	4.25
Lima	2.48	3.73
McKinney	2.00	2.60
Pennsylvania	4.00	6.10
Waterloo	1.25	...
Wooster, Ohio	2.70	4.05

Indiana-Illinois

Illinois .....℔ bbl.	$2.27	$3.77
Indiana	2.28	3.63
Plymouth, Ill.	1.15	3.48
Princeton, Ind.	2.27	3.77

Kentucky-Tennessee

Ragland .....℔ bbl.	$1.25	$2.60
Somerset, light, 38 gravity and above	2.65	4.50
42 to 38 gravity	2.40	4.25

Oklahoma-Kansas

Healdton .....℔ bbl.	$1.30	$2.75
Mid-Continent	2.25	3.50
Walters and Beaver Creek	.95	...

Western Kentucky

Western Kentucky.....℔ bbl.	$2.40	...

Louisiana and Arkansas

Bull Bayou, 38 grav. and above	$1.90	$3.15
35 to 37.9 deg.	1.80	3.05
32 to 34.9 deg.	1.75	3.00
heavy, below 32 deg.	.50	2.00
Caddo, 38 deg. and above	2.00	3.50
35 to 37.9 deg.	1.90	3.40
32 to 34.9 deg.	1.85	3.20
heavy	1.25	2.25
Crichton, light	1.75	3.00
De Soto	2.00	3.40
El Dorado, 34 deg. and above	2.00	...
below 34 deg.	1.75	...
Haynesville, 34 deg. and above	1.85	...
below 34 deg.	1.75	...
Homer, 36 grav. and above	2.00	2.50
35 to 35.9 deg.	1.90	2.40
32 to 34.9 deg.	1.85	2.35
below 32 deg.	1.50	2.00
Pine Island	1.50	1.75

North Texas and North Central Texas

Burkburnett .....℔ bbl.	$2.25	$3.50
Corsicana, light	1.20	3.00
heavy	.70	1.75
Electra	2.25	3.50
Henrietta	2.25	3.50
Mexia	.75	...
Moran	2.25	3.50
North Central Texas	2.25	3.50
Petrolia	2.25	3.50
Ranger	2.25	3.50
Stephens	2.25	3.50
Strawn	2.25	3.50
Thrall	2.25	3.50

Gulf Coast

Batson .....℔ bbl.	$1.25	$3.00
Blue Ridge	.80	...
Dayton	1.25	3.00
Edgerly	1.25	3.00
Goose Creek	1.25	3.00
Hull	1.25	2.50
Humble	$1.25	$2.50
Jennings	1.25	2.50
Markham	1.25	2.50
Pierce Junction	.80	....
Saratoga	1.25	3.00
Somerset	1.75	...
Sour Lake	1.25	2.50
Spindletop	1.25	3.00
Vinton	1.25	2.50
West Columbia	1.25	2.50

Wyoming and Montana

Big Muddy.....℔ bbl.	$1.40	$2.75
Cat Creek	2.00	...
Elk Basin	1.90	3.10
Grass Creek	1.90	3.10
Greybull	1.95	...
Hamilton	1.40	...
Lance Creek	1.90	3.05
Lander	1.15	1.75
Mule Creek	1.35	...
Osage	1.90	...
Pilot Butte	1.20	2.75
Rock Creek	1.50	2.75
Salt Creek	1.40	2.75
Torchlight	1.95	...

California

San Joaquin Valley and Whittier-Fullerton Fields—	1921.	1920.
14 deg. to and including 17.9 deg. gravity.....℔ bbl.	$1.10	$1.60
18 deg. gravity	1.11	1.61
19 deg. gravity	1.13	1.63
20 deg. gravity	1.16	1.66
21 deg. gravity	1.20	1.70
22 deg. gravity	1.25	1.75
23 deg. gravity	1.31	1.81
24 deg. gravity	1.38	1.88
25 deg. gravity	1.46	1.96
26 deg. gravity	1.55	2.05
27 deg. to and incl. 27.9	1.65	2.25
28 deg. to and incl. 28.9	1.75	2.35
29 deg. to and incl. 29.9	1.85	2.45
30 deg. to and incl. 30.9	1.95	2.55
31 deg. to and incl. 31.9	2.05	2.65
32 deg. to and incl. 32.9	2.15	2.75
33 deg. to and incl. 33.9	2.25	2.85
34 deg. to and incl. 34.9	2.35	2.95
35 deg. gravity and above	2.45	3.05

MEXICO

F. o. b. New York, light	$1.70	...

	14-16 deg.
Arkansas	$1.42
Beaumont	1.42
Galveston	1.43
Houston	1.45
New Orleans	1.45
Fort Arthur	1.42
Port Natches	1.42

CANADA

	1921.	1920.
Oil Springs.....℔ bbl.	$2.95	$4.13
Petrolia	2.88	4.20

Add 52½c. per barrel to each grade to include allowance by government to producers.

REFINED PRODUCTS

(Tank Car Quotations at Refineries.)

Gasoline and Naphtha

North Texas

48@50, 460 end point, naphtha and gas.....℔ gal	12 @	12½
50@52, 450 end point, naphtha...	12 @	12½
56@58, 450 end point, naphtha...	13 @	13½
58@60, 437 end point, 140 i. b. p. (new navy)	14 @	14½
60@62, 420 end point, gasoline...	14½@	15
64@66, 360@375 end point, gasoline	16 @	17

Oklahoma

50@52, 450 end point.....℔ gal.	12 @	12½
56@58, 450 end point	12 @	13
58@60, 437 end point, 140 i. b. p. (new navy)	14 @	14½
60@62, 400 end point	15 @	15½
64@66, 385 end point	15½@	16
80@84, natural gasoline	16 @	17
76@84, absorption gasoline, 8 lb. V. T.	16 @	17
64@66, blend, 450 end point	15 @	16
60@62, blend, 450 end point	15 @	16

Pennsylvania

52 grav., naphtha.....℔ gal.	15 @	—
54 grav., naphtha	15¾@	—
56 grav., naphtha	17½@	—
58 grav., naphtha	18 @	—
62 grav., S. R. gasoline	18¾@	—
64 grav., S. R. gasoline	22 @	—
68 grav., S. R. gasoline	25 @	—
68@70 blend, 460 end point	16½@	17
60@62 blend, 450 end point	16½@	17
62@64 blend, 450 end point	17 @	17½
66@68 blend, 450 end point	17 @	17½
68@70 blend, 440 end point	17 @	17½
68@70 blend, 420 end point	17½@	18

Burning Oils

North Texas

40@42 prime white distillate	4¾@	5¼
40@43 prime white kerosene	6 @	6½
42@43 water white kerosene	5½@	6

Oklahoma

41@43	4¾@	5¼
42@43	5 @	5½
44@46	6 @	6½
42@43 distillate	6 @	6½

Pennsylvania

45 prime white	7¼@	7½
45 water white	7½@	—
46 water white	8 @	—
47 water white	10¼@	—
48 water white	11½@	12
300 mineral seal	10 @	10½

West Virginia

45 water white	9 @	9½
47 water white	10 @	10½

Fuel and Gas Oils

Bayonne

28@36 degrees.....℔ gal.	7½@	8
24@28 degrees	7 @	—
18@20 degrees	7 @	—
14 plus	6 @	—

North Texas

32@36 gas oil.....℔ gal.	3 @	3½
22@24 fuel.....℔ bbl.	80 @	1.00
24@26 fuel	90 @	1.00
26@30 fuel	1.10 @	1.25

Pennsylvania

36@40 fuel oil.....℔ gal.	5¾@	—
38@42 gravity	6 @	—

Oklahoma

32@36 gas oil, f. o. b., group 3, Oklahomo .....℔ gal.	3 @	3½
Fuel oil, 24@36 deg.....℔ bbl.	90 @	1.10
Road oil, 45@60 asphalt..℔ bbl.	1.00 @	1.25

South Texas

Fuel oil, f. o. b. tanker... bbl.	1.50 @	—

Neutral Oils

Oklahoma

100 vis., No. 2 color	5 @	5¼
100 vis., No. 3 color	5½@	5¾
200 vis., No. 3 color	13 @	14
150 vis., No. 4 color	10 @	11
200 vis., No. 4 color	12 @	14
200 vis., No. 5 color	11 @	12
285 vis., No. 6 color	15 @	16

Pennsylvania

200 vis., No. 3 color.....℔ gal.	21 @	—
180 vis., No. 3 color	19¾@	—
150 vis., No. 3 color	17 @	—

South Texas

75 vis., No. 2 color, unfiltered, pale .....℔ gal.	6½@	7
100 vis., No. 2 color, unfilt pale	8 @	8½
150 vis., No. 2½ color, unfilt., pale	12 @	13
200 vis, No. 3 color, unfilt. pale	14 @	15
300 vis., No. 3 color, unfilt. pale	15 @	16
500 vis., No. 4 color, unfilt. pale	20 @	23
750 vis., No. 4 color, unfilt. pale	30 @	34
70 vis., No. 1½ color, filt. pale	— @	—
100 vis., No. 1½ color, filt. pale	— @	—
150 vis., No. 1½ color, filt. pale	— @	—
200 vis., No. 2 color, filt. pale	— @	—
300 vis., No. 2 color, filt. pale	— @	—
500 vis., No. 2½ color, filt. pale	— @	—
750 vis., No. 2½ color, filt. pale	— @	—
200 vis., No. 5½ color, red oil	12 @	14
300 vis., No. 5½ color, red oil	15 @	16
500 vis., No. 6 color, red oil	17 @	18

Cylinder Stocks

Pennsylvania

600 steam refined	14½@	—
635 steam refined	17½@	—
650 steam refined	19 @	—
600 flash	27 @	—
600 Warren E	22 @	—
600 Oil City E	22 @	—
600 medium filtered (D)	19 @	—
Cold test stocks (dark filtered)	40 @	—
Black oil	9 @	10

Oklahoma

600 steam refined	6½@	7

Wax

Oklahoma

122-124 E. M. P., white cr. sc. ℔ lb.	2 @	2½

Pennsylvania

122@124 white, crude scale...lb.	2¾@	—
124@126 white, crude scale	3 @	—

Oxidized Asphalt

Asphalt, f. o. b. New Jersey refinery .....℔ ton.	25.00 @	—
f. a. s. New Orleans, in cont.	24.50 @	—

GASOLINE AND KEROSENE TANK WAGON AND SERVICE STATION PRICES SEE PAGE 8.

EXPORT QUOTATIONS

(Refined Products)

Illuminating Oils

Quotations are based on the following quantities:—Bulk, tank steamer lots, ranging from 30,000 to 70,000 barrels, according to steamer capacity; barrels, cargo lots, about 30,000 barrels; cases, cargo lots averaging from 10,000 to 20,000 cases.

	S. W., 110 test. 1921.	1920.
Bulk, New York.....℔ gal.	8.00	15.00
Barrels, New York, cargo	15.00	22.50
Cases, New York	18.50	28.00
Barrels, small lots	20.00	32.25

Prices for water white oil (150 test) are 1c. higher than those for standard white.

	Cases 110 test.
Two 5 gal. cans, low screw lot, base, ℔ gal.	18.50
15,000 to 15,999 cases	18.91
10,000 to 14,999	18.94
5,000 to 9,999	19.00
3,000 to 4,999	19.04
1,000 to 2,999	19.20
700 to 999	19.30
500 to 699	19.45
400 to 499	19.55
300 to 399	19.60
200 to 299	19.90
1 to 199	18.50

*Add lighterage, $40.

Naphthas, Gasoline, Etc.

(In bulk.)

	1921.	1920.
Gasoline, U. S. Navy spec., ℔ gal.	19.00	....
60 deg.	19.50	....
Naphthas—		
63@66 deg.	23.50	27.50
66@68 deg.	24.50	28.50
68@72 deg.	25.50	....

(Base prices.)

	100 to 199 cases	
Benzine, 59@61 deg....℔ gal.	33.25	38.75
Gasoline, 63@65 deg.	34.25	42.25
Naphthas—		
Aero 68@72 deg.	40.25	43.75

*Add lighterage charges.

London Quotations

	£.	s.	d.	£.	s.	d.
American refined petroleum	0	1	4			
motor spirit	0	1	5			
Gas oil, naked, ex wharf, ℔ gal.	0	0	5½			
Fuel oil, furnace....℔ ton.	3	15	9			
Diesel, ex wharf.....℔ ton.	5	5	0			
Paraffin wax, various melting points.....℔ lb.	0	0	2½@	0	0	3¾
Lubricating oils—						
American pales.....℔ ton.	15	0	0	@38	10	0
American reds	20	17	6	@37	10	0
American dark cylinders	27	0	0	@51	10	0
American filtered cylinders. ℔ ton.	35	0	0	@51	10	0

Liverpool Quotations

	£.	s.	d.	£.	s.	d.
Refined petroleum....℔ gal.	0	1	4			
Lubricating oils.....℔ ton.	15	0	0	@25	0	0
Cylinder oils.....℔ ton.	42	0	0			
Paraffin wax, ex store.℔ lb.	0	0	2¼@	0	0	4
Gas oil, ex store, bulk..gal.	0	0	5½			

Lubricating Oils in Barrels

(F. a. s. New York—Less than carload lots.)

MOTOR OIL.		
Light, 200@100.....℔ gal.		32
Medium, 250@100		34
Heavy, 330@100		40
PALE GAS ENGINE		
Light, 200 vis.....℔ gal.		30
Medium, 300 vis.		32
Heavy, 750 vis.		40
RED GAS ENGINE.		
Light, 200@100.....℔ gal.		30
Medium, 250@100		32
Heavy, 330@100		40
PALE DYNAMO.		
Light, 100 vis.....℔ gal.		30
Medium, 150 vis.		36
Heavy, 200 vis.		40
RED DYNAMO.		
Light, 180 vis.....℔ gal.		37
Medium, 210 vis.		39
Heavy, 275 vis.		44
RED MACHINERY.		
Light, 260 vis.....℔ gal.		40
Medium, 335 vis.		47
Heavy, 385 vis.		57
OTHER OILS, ETC.		
TRANSFORMER OIL, 100 vis., 100 deg., ℔ gal.		45
DARK ICE MACHINE		35
BATCHING OIL		45
CORDAGE OIL		37
RAILROAD CAR AXLE OIL		30
PENNSYLVANIA UNFILTERED CYLINDER STOCKS.		
650 fire test, 185 vis. at 212 deg. 24.5 Be.....℔ gal.	25 @	—
630 fire test, 175 vis. at 212 deg., 25 Be.	23 @	—
600 fire test, 150 vis. at 212 deg., 25 Be.	20 @	—
PENNSYLVANIA FILTERED CYLINDER STOCKS.		
D 600 fire test.....℔ gal.	34 @	—
E 600 fire test, 130 vis. at 212 deg., 26.2 Be.	24 @	—

Wax

(F. a. s. carload lots.)

White crude scale, in barrels, 122@124 A. m. p...℔ lb.	2½@	—
124@126 A. m. p.	2½@	—
Yellow crude scale, 124@126 A. m. p.....℔ lb.	2½@	—
Match, bbls., 105@108 A. m. p., ℔ lb.	4 @	4½
111@115 A. m. p.	4½@	—
Semi-refined, solid, bags, 122@124 A. m. p.....℔ lb.	3¼@	3½
124@126 A. m. p.	3¼@	—
125@127 A. m. p.	3¾@	—
Fully refined, slabs, bags or cases, 118@120 A. m. p. ℔ lb.	3¼@	—
123@125 A. m. p.	3½@	—
125@127 A. m. p.	3¾@	—
128@130 A. m. p.	3¾@	—
130@132 A. m. p.	4½@	—
133@135 A. m. p.	5 @	5¼
135@137 A. m. p.	5½@	—
138@140 A. m. p.	6½@	—

English melting point is three degrees lower than American melting point, i. e., 116 E. M. P. is equal to 119 A. M. P.

JOBBING QUOTATIONS

	1921.	1920.
Crude oil, steel barrels...℔ gal.	18	16
wooden barrels	28	—
Gas oil, 32-34 deg., bulk, f. o. b. refinery .....℔ gal.	7	—
Fuel oil, bulk, per 42-gal. bbl., f. a. s. New York	1.60 @	—

Illuminating Oils

	1921.	1920.
150 fire test, W. W., bbls.	24	—
150 fire test, W. W., T. W.	15	—

Naphthas, Gasoline, Etc.

	1921.	1920.
Motor gasoline (garages only), steel barrels	27	28.5
Motor gasoline to consumers	30	30.5
Naphtha, V. M. and P., deod., steel barrels	24	27.5

All prices f. o. b. New York city.

Lubricating Oils

(In barrels.)

Black, reduced, 25@30 cold test. ℔ gal.	20 @	21
15 cold test	21 @	22
Cylinder, Penn., dark fil. D	40 @	45
Penn., dark fil. E	35 @	40
Penn., bright fil., cold test.	52 @	55
Unfiltered, st. ref., various grades	25 @	30
Bloomless, 30@31 grav., 100 vis. at 70 deg.....℔ gal.	28 @	30
White technical oil, No. 1, 33@34 deg., steel bbls.℔ gal.	60 @	65
Paraffine pale, 903 grav., 25.4 B. 230	25 @	30
885 pale, 28.2 B. 80 to 85	22 @	25
875 specific gravity, pale	20 @	24
red paraffin	30 @	35
Spindle, No. 200, pale	40 @	42
150, pale	35 @	40
180, pale	31 @	32
160, red	28 @	30
Burning oil, mineral seal..℔ gal.	20 @	22

Petrolatums

(Prices per pound in barrels, carloads.)

SNOW WHITE	13 @	—
LILY WHITE	12 @	—
CREAM PETROLEUM JELLY	8 @	—
AMBER	5 @	—
DARK AMBER	5 @	—
VETERINARY	3½@	—
DARK GREEN	3 @	—

Heavy White Mineral Medicinal Oil

875-885 specific gravity....℔ gal.	$1.15 @	—
865-870 specific gravity	1.10 @	—
Ex. Russian crude oil, 885@890 specific gravity, in barrels, to arrive....℔ gal.	1.85 @	2.00

PIPELINE REPORTS

New York, Pennsylvania, West Virginia, Kentucky, Tennessee Ohio and Indiana

Runs

	Barrels.	Total.
Nov. 27	66,620	1,377,835
Nov. 28	69,078	1,446,913
Nov. 29	21,191	1,468,204
Nov. 30	108,898	1,577,102
Dec. 1	6,538	6,538
Dec. 2 and 3	54,546	61,084

Deliveries

	Barrels.	Total.
Nov. 28	139,575	1,321,837
Nov. 29	34,866	1,356,703
Nov. 30	84,562	1,441,265
Dec. 1	32,810	32,810
Dec. 2, 3 and 4	104,393	137,203

OIL TRADE MATERIALS

Animal and Vegetable Oils

(All these are New York prices except those marked otherwise.)

Degras, English.....℔ lb.	3½@	—
domestic, car lots	3½@	—
Horse grease.....℔ lb.	5 @	5½
Lard oil, prime inedible..℔ gal.	85 @	87
extra No. 1	72 @	—
No. 1	64 @	66
No. 2	60 @	63
Neatsfoot oil, 20 deg., cold test. ℔ gal.	1.10 @	1.20
prime	83 @	—
Menhaden, light pressed..℔ gal.	43 @	45
light bleached water	47 @	49½
Sperm, 38 deg., bleached..℔ gal.	1.70 @	—
Whale, extra, bleached....℔ gal.	77 @	80
Soya bean, bbl.....℔ gal.	8¾@	—
Linseed, raw, carloads....℔ gal.	67 @	—
December delivery	67 @	—
Herring oil, No. 3, sellers' tanks, Pacific coast.....℔ gal.	35 @	—

Naval Stores

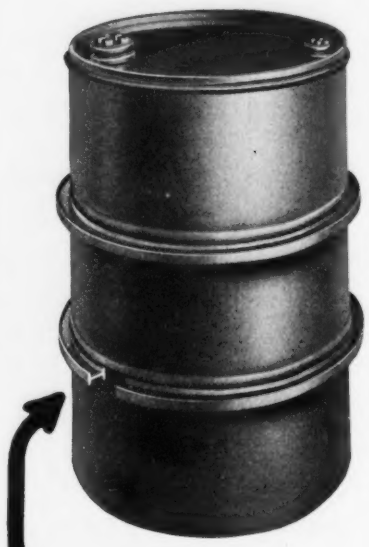
Rosin, B to K.....℔ bbl.	5.00 @	6.25
W. G.	7.25 @	—
W. W.	7.75 @	—
Turpentine, spirits, ex yard, ℔ gal.	79½@	—

Chemicals

Fuller's earth.....℔ ton.	22.00 @	—
Soda ash, light, 58 p. c. in bags .....℔ cwt.	1.50 @	1.90
Silicate of soda, 60 deg...℔ cwt.	2.75 @	3.25
Sal soda .....℔ cwt.	1.90 @	2.00
Caustic soda, 76 p. c.....℔ cwt.	3.00 @	3.90
Sulphuric acid, 66 deg., tank cars .....℔ ton.	17.00 @	18.00
60 deg., tank cars	11.00 @	12.00
Benzol, pure .....℔ gal.	27 @	40
90 p. c.	25 @	36
Toluol .....℔ gal.	27 @	37
Chloride of lime.....℔ cwt.	2.25 @	3.00

P.I.W.
STEEL PLATE CONSTRUCTION

THE I-BAR HOOP



is the logical hoop construction for steel containers to be used in *export trade*. Water accumulates quickly from the moist salt air of the docks and ship decks. This water readily finds a lodging space under the common U-shaped hoop of the ordinary drum—where it lays for long periods while the resulting rust-process eats into the hoops and the steel shell, eventually rendering the drum useless.

This cannot happen on "Presteel" drums equipped with I-Bar hoops as shown here. It is a neat-appearing, easy-rolling, strongly reinforced container.

That's why the U. S. Marine Corps specified I-Bar hoops for the big order of "Presteel" drums we furnished recently for their "*round the world—follow the flag*" *requirements.*

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"Presteel" Light Gauge Shipping Containers—15, 30, 50, 55 gal. capacities.
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"GEM" Bilged Steel Barrels — (black or galvanized) 55 gal. capacity.

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Magazine Point (Mobile), Ala.
Port Arthur, Texas

SECTION II—PETROLEUM

Oil, Paint and Drug Reporter

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An Era of Experimentation

In spite of many prophets and a few post-analysts who have convinced at least themselves that in the past six months the petroleum industry has been ordered in accordance with the law of supply and demand, the conviction grows among oil men in general that its recent performances are not to be so easily explained; less readily is its trend in the near future to be foretold. The alternative conclusion, that is, that the industry is under the sway of manipulation, is not, however, undisputably tenable. In fact, it seems that the influencing factor is experimentation. Neither men nor corporations, neither associations nor nations, know how to accept the peculiarities with which the production and consumption of petroleum are afflicted; so there has been a trying of this and a trying of that in an empirical endeavor to discover what will cause the wheels to turn in a natural manner.

Oil men, speaking at last week's meeting of the American Petroleum Institute, confessed they had not been able to guess right time and again during the past year, but they keep on guessing. Corporations have rushed to load up with oil at low prices—and brought about such an overloading that, it would seem, they had to boost prices to curb their own excessive buying. Maybe their latest experiment will "work."

Associations have tried a plan of production curtailment, but did not get very far in the direction of real results, the price slump keeping a lap or two in the lead, and the price jump a bit later beating production to the turn long before anybody needed oil. Among nations the experimentation has been still more popular. Mexico, believing blindly in the law of supply and demand and having a pretty fair share of the former, tried to profit through taxation. The world got along quite nicely without Mexican oil. Then a tax compromise was tried, and oil from Mexican fields was once again being carried abroad in enormous quantities. Seemingly the first guess appeared to the guessers to have been fundamentally sound, with a bit of faultiness in the detail of "playing the hunch" perhaps responsible for its failure to "work." So—once again the collection of a "commission" was decided upon—and last week the arrivals of Mexican oil at the port of New York totaled less than 50 per cent. of those of a week earlier. Backing up would seem to be once again the order of the day.

The Netherlands has been doing a bit of guessing, too. It guessed that the profit-splitting offer of the Government-Shell combination for the exploitation of Djambi fields would pay. Before that guess had a chance to prove out, an experiment in further profiting was attempted, and a tax was laid upon East Indian oil. Every time a government lays down a tax notice in front of an oil industry, that industry immediately curls up and goes to sleep. The Netherlands learned nothing from Mexico. The East Indian operators, however, apparently had learned a line or two from their fellows in the warmer portion of the Western Hemisphere, at least they pursued a similar policy of inactive resistance. Also, they got busy guessing a bit on their own hook; talked about a stock dividend; started getting a foothold in other fields. So the Netherlands guessed again, and the East Indian oil tax idea is to be abandoned.

It's a poor guess that cannot be reversed, but experiments in analysis are much simpler than those of a synthetic aim. It is one thing to guess what is wrong with the oil industry and quite another matter to apply that guess to the correction of the faults.

At the present time a large portion of the oil industry is guessing what will happen next ("next" meaning, so most of the guessers say, after the turn of the year). Most of the other portion has got beyond the guessing stage and is simply waiting, with a variety of sensations, to see what will turn up. A small portion is earnestly striving to find the key to the solution of the problem. The bright side of the situation is that guessers, waiters, and strivers, are all optimistic, even though all are more or less in agreement with the speaker at the A. P. I. meeting who so aptly said that the oil man's greatest present-day need is the faculty of the sand crab which enables it to go ahead, slow up, back up, or change its direction without stopping or turning around.

Practical Optimism at the A. P. I. Meeting

Taking last week's meeting of the American Petroleum Institute by and large, its optimism stands out as a most gratifying characteristic. That optimism seemed to have a deal of seriousness about it. There was little evidence of a blind faith that everything would come out all right, little of an attitude of "we-don't-know-where-we're-going - but - we're - on - our - way," albeit many phases of the industrial situation were admitted to be a bit too complex for general interpretation. Rather was the optimism that of the Indian who had temporarily lost his bearings, but denied emphatically that he was lost. "Injun not lost," he declared; "him right here. Wigwam lost."

In the light of the A. P. I. meeting at Chicago, the problem of the petroleum industry is not one of returning to "normalcy," but a task for hand and head to induce the strayed "normalcy" to return. There is a difference as well as a distinction. The necessity is indicated for supplementing with activity the reposeful frame of mind which is optimism in a theoretical sense.

The optimism at Chicago embraced resources, productive endeavor, storage facilities, refining development, new uses, new products. It was quite universal in its scope. It is, also, quite universal in its prevalence. The men who spread the glow of optimism orally at the gathering of their fellows, are by their acts in their everyday pursuits no less evidencing a firm belief in the future of the industry. Two orders alone of a number recently given for line pipe called for a total of 40,000 tons. One order, reported but a few days ago, calls for 15,000 tons of tank steel. Among other calls for supplies for the future are an order for 2,600 tons of steel casing and one for 1,200 tons of still plates. Of course, the price of steel has been reduced, but it is unnecessary to remind oil men that something other than lowered prices is needed to stimulate buying. Those orders for steel have by no means been placed solely in the belief that the contract price of the metal made the purchase a bargain. They are the result of faith in the future of the industry, a faith which is not going to die for lack of good works.

Laying pipelines will not restabilize the petroleum industry. Erecting enormous tanks will not coax back the errant "normalcy." And it is not the belief of those who plan such building for transportation and storage that, important as they may be, the problems of carrying and storing oil are those whose solution is most essential. They plan for a more distant day when, as a result of such deliberations as characterized the A. P. I. meeting, the possibilities of the consuming market for petroleum shall have been realized. They plan expansion, not curtailment. Therefore, they plan wisely and well.

A report of the Chicago meeting of the American Petroleum Institute is printed elsewhere in this issue of the Reporter. It is replete with messages for every man in every division of the petroleum industry, messages which will not only hearten him, but will—and this is of far greater moment—show him how he, having taken heart, may take hold and strive intelligently. The future of the industry lies not in tomorrow or even next month. Days of real work interpose between the unsettled condition of the present time and the achievement of restabilization. The year about to close is not the only one, not even the most resultful one, in which earnest endeavor will bring a worth while return.

Reviving an International Idea

Thrown into the background by the closely following world upheaval, the idea of an international petroleum institute, broached at the 1912 meeting of the International Petroleum Commission, has been revived. In view of the recent intensity of international interest in petroleum, this revival is of importance and is deserving of thorough consideration. In fact, as the International Petroleum Commission was, itself, obliged to discontinue functioning by the exigencies of war-time conditions, the need for an international organization is unquestionable.

The International Union of Pure and Applied Chemistry has suggested the establishment of national laboratories for the study of combustibles in each of the countries represented in its membership. This has been seized upon by a member of the French National Petroleum Commission as an opportunity to present before the recent meeting of the Petroleum Products Section of the Societe

Are You Fifty Years Old?

Let us remind you, please, that, if your firm has been in existence for fifty years or a longer time, we want a brief sketch of its life for inclusion in the historical section of our special jubilee issue to be published early in 1922.

We are proud of our half century of service and we plan the aforementioned jubilee number as an appropriate expression of that pride. Surely you are as proud as we, and consider your history well worth relating.

Will you not, then, send us a concise account of the founding of your business and its growth? Please include the names of those who have directed its affairs from its establishment until the present time. If you have any pictures of men or buildings associated with the early days of the business, let us have them for reproduction.

de Chimie Industrielle a plan for an international institute to centralize and control the results obtained in such laboratory study of liquid fuel.

Dealing with the subject from the standpoint of a chemist, the French expert naturally stressed the importance of international investigation in the technology of petroleum. He recalled, however, the problems of international transportation, petroleum ports, petroleum legislation, and so on, with which the International Petroleum Commission purposed to concern itself, and expressed the belief that the recent importance of these pointed to the wisdom of reviving that organization. It is not beyond possibility to start with the debris of the erstwhile commission and construct an international institute economical as well as technological in purpose—and both phases of the petroleum industry well deserve some such international consideration.

The work begun a decade ago has been discontinued in every country except the United States and, to a certain extent, Great Britain. In this country there have been progressive strides both in technological and economical investigation. But even here the progress in either division can scarcely be said to have gone beyond the primary stage, when one considers the wastefulness of present-day methods, especially in consumption and the possibilities hinted at by such limited technological investigation as has been carried on.

There can be no gainsaying the benefits to be derived from an international co-ordination of the work now being done and possible in such organizations as the Bureau of Mines, the petroleum sections of chemical societies, the American Petroleum Institute, the British Institute of Petroleum Technologists, and in the laboratories of the more progressive universities here and in Europe. The selection of an executive head for the direction of the work of co-ordination, of course, offers a problem by no means simple. Complex also is the problem of selecting a location for the headquarters of an international organization. But both these problems have been solved in the organization of other international bodies, and it should not be impossible to obviate the national influence which accentuated them in the early days of the defunct International Petroleum Commission.

Big problems are the sort with which American oil men like to deal. The formation of an international organization presents such a problem, and one whose solution would seem to be well worth while.

PRODUCTION UP 5,430 BARRELS

Increase in the Midcontinent Field Was 18,000 Barrels Week of December 3

The American Petroleum Institute estimates that the daily average gross crude oil production in the United States for the week ended December 3 was 1,333,310 barrels, as compared with 1,327,880 barrels for the preceding week, an increase of 5,430 barrels.

The following are estimates of daily average gross production for the weeks ended December 3, November 26, 1921, and December 4, 1920:—

Daily Average Production

(Figures in barrels)

	1921		1920.
	Dec. 3.	Nov. 26.	Dec. 4.
Oklahoma	311,100	311,200	305,575
Kansas	90,450	91,200	100,925
North Texas	59,550	59,850	73,355
Central Texas	172,750	164,500	134,975
North Louisiana and Arkansas	124,700	113,800	85,030
Gulf Coast	99,160	110,880	110,805
Eastern	115,000	116,000	120,500
Wyoming and Montana	55,600	55,450	50,750
California	305,000	305,000	310,000
*Total	1,333,310	1,327,880	1,291,915

* Daily average gross production.

The estimated daily average gross production of the Mid-continent (light oil) field, including Oklahoma, Kansas, North Texas, Central Texas, North Louisiana and Arkansas, for the week ended December 3, was 758,550 barrels, as compared with 740,550 barrels for the preceding week, an increase of 18,000 barrels.

The estimated daily average gross production of the Gulf Coast (heavy oil) field was 99,160 barrels, as compared with 110,880 barrels for the preceding week, a decrease of 11,720 barrels.

The combined daily average gross production of the Southwest field was 857,710 barrels, as compared with 851,430 barrels for the preceding week, an increase of €,280 barrels.

Oklahoma-Kansas shows a daily average gross production of 401,550 barrels, a decrease of 850 barrels; North Texas shows a decrease of 300 barrels; Central Texas, an increase of 8,250 barrels; North Louisiana, an increase of 9,900 barrels, and Arkansas, an increase of 1,000 barrels.

The estimated daily average gross production of the Wyoming and Montana field was 55,600 barrels, as compared with 55,450 barrels for the preceding week, an increase of 150 barrels.

Oil-Carrying Steamer Is Reported Missing

The oil-carrying S.S. Santa Rita of 5,416 gross tons, which left New Orleans on October 20, was reported last Wednesday as being twenty-two days overdue at Spezia, Italy. The Santa Rita was last spoken three days after leaving New Orleans, when the vessel was off Key West. Nothing has been heard of the steamer since.

Two New Gushers in Gulf Coast

Houston, Tex., Dec. 6, 1921.

Two new gushers have been completed in coastal territory within the past 24 hours by the Gulf Production Co. The larger was at Pierce Junction, where the company's No. 9 Taylor was finished at 3,900 feet, flowing 9,000 barrels. At Orange the Gulf completed No. 1 Winfree, which is flowing 1,500 barrels through half-inch choker and would probably double its output if allowed open flow. This well was completed at around 3,250 feet.

BRIEFS BY THE WAY

The Franco-Anglaise de Recherches Petroliferes Co. has increased its capital stock from 550,000 francs to $1,650,000 francs.

The "Cometa" Roumanian Oil Co. has increased its capital stock by ten million lei. The capitalization is now 20 million lei.

A new oil company has been formed in Colombia, under the name of Sindicato de fomento de la Industra Petrolera on Colombia.

The Black Seal Lubricant So., Baltimore, has been incorporated with a capital of $400,000 by James G. Pugh, Frank H. Kelley and Peter Peck.

The Amber Oil Co., of Bowling Green, Ky., capital $100,000, has been chartered by A. H. Malaney, J. F. Walron and B. J. White.

The drilling of oil, which has been going on now for some time in Lagenbruecken, Baden, Germany, has yielded positive results. The State of Baden will share in the profits derived from these oil deposits.

E. J. Freeman, Tulsa representative for the Acme Petroleum Co., and vice-president of the company, is in Chicago for a visit to the Institute meeting and the home office at the same time.

The Pure Oil Co. has awarded to the Youngstown Sheet & Tube Co. a contract for 17,000 tons of eight-inch pipe for construction of a 250-mile pipeline. This is one of the largest orders placed this year.

The Kansas & Gulf Co. has completed its No. 2 well in section 4, township 11, De Sota parish, Louisiana, near Shreveport, from a depth of 2,690 feet, making 1,500 barrels daily pure oil of 42-gravity.

A new deposit of oil has been discovered at Sakhalin, an island near Japan. The Japanese journals call this discovery the first practical result obtained from the efforts that have been made by Japanese capitalists to locate oil in that island.

The P. H. Callahan Co., operating an oil storage or tank farm handling petroleum products in connection with oils used by the Louisville Varnish Co, of which it is a subsidary, has discontinued retail sales at the tank farm, where it formerly operated a station pump and sold oils, greases, etc.

Howard Walker, president of the Associated Producing and Refining Corp., with general offices in the Arcade building, St. Louis, Mo., announces that the corporation has just completed a well near Peabody, Kas., in section 8, township 22, range 4, at 2,485 feet, same being drilled only one foot in the sand, making 800 barrels of pipeline oil.

Reports from Western Kentucky received in Louisville and Lexington state that the Bolsom interests of St. Louis have purchased of Hurshburg & Tracey the John Ogles lease of 150 acres, near Petroleum, Allen county, Kentucky, at a reported price of $50,000. There are 20 wells on the property, and the new owners are reported to be planning a number of additional wells.

Jack Sankey, oil operator, formerly of Tulsa, and Los Angeles, Cal., was found dead in his apartment at a hotel at Fort Worth, Tex., recently.

Sankey was 37 years old, was born in New Castle, Pa., and went to Texas in 1918 at the start of the Ranger boom. He made a fortune previously in the Healdton pool, in Oklahoma, and lost most of it. He built another one in Texas, his wealth at one time having been estimated at more than a million dollars, but he lost much of what he made. He was formerly associated with W. G. Skelly in producing operations, but sold his interests upon the formation of the Skelly Oil Co.

At Lexington, Ky., H. F. Gosney, local secretary of the Day Oil Co., has filed suit in the Fayette Circuit Court, asking appointment of a receiver for the company, and alleging that there is more than $3,000 due him as back salary.

The safe in the Lexington, Ky., office of the Indian Refining Co., was blown on Nov. 28, and $75 in cash and a number of checks taken. A screen was pulled from a window and a glass broken out in getting into the office, which has been robbed several times.

It is reported from Australia that the Anglo-Persian Oil Co., which was refused a concession last year, is again negotiating with the Australian government for the right to explore the oil deposits on 100,000 acres of oil land. The results of the negotiations are yet to be known.

James A. Hood, of the Hood Realty Co. recently bought a lot 141x318 at the southeast corner of Broadway and Fair Oaks street, Chicago, from the Ford Motor Car Co. for $70,000. He has sold it for $80,000 to the Standard Oil Co. of Indiana, which plans an elaborate oil and filling station.

Public utility power plants in the United States consumed 1,175,585 barrels of fuel oil and 2,297,475,000 cubic feet of natural gas during October as fuel necessary for the production of electric current, according to the U. S. Geological Survey. Large tonnages of coal and considerable water-power were also used during the month in the production of 1,139,090,000 kilowatt hours.

Announcement has been made to the effect that the Kentucky Oil Men's Association will hold its annual meeting at Lexington, Ky., Dec. 10, to elect officers and directors. A. B M.arshall, president, and E. E. Loomis, secretary, will probably be re-elected, but some new directors are anticipated. Secretary Loomis will review the year's work in the fields and the outlook for 1922.

Franklin, Ky., reports that some tests to 1,100 feet will be made in the Davenport and Glen Lily fields of Western Kentucky, where several rigs are at work, it being believed by some of the operators that there is a much better paying sand at greater depth, although practically no testing has been made in the past, as the field has been prolific at short range drilling.

It now appears that the contract for that big shipment of gasoline from the Midwest Refining Co., to New Orleans for export, was brought about through a reduction of freight rates. From December 15, the rate from Casper, Wyo., to the Gulf ports will be reduced from 73½ cents to 50 cents per hundred pounds. At the same time the rate from Tulsa to the same destination will be reduced from 32½ to 24½ cents. The Standard Oil Co. has been very successful in getting rates reduced. Only a short time ago it secured a material reduction in rates from Casper to Chicago and the East.

Los Angeles Minister Strikes Oil

LOS ANGELES, Cal., Dec. 3, 1921.

The Rev. Bryant H. Wilson, superintendent of the Los Angeles district of the Methodist Church, residing at Long Beach, and who has been a minister in that denomination for several years, appears to be on the way to enjoy an income of about $200 a day as the result of oil development in the Huntington Beach field. The gentleman's income probably has never reached even $200 a month; yet he has been frugal.

Before the oil development period Rev. Mr. Wilson purchased fourteen acres, which is now included in the geological oil area of the Beach city. This he leased. The first well drilled has started to flow at the rate of 1,000 barrels a day. His royalties will materially swell his income.

WYOMING I. O. M. A. CHANGES ITS NAME

Will Be Known as the Rocky Mountain Oil & Gas Association

CASPER, Wyo., Dec. 2, 1921.

The directors of the newly organized oil men's association met in Casper during the past week, elected officers and prepared themselves for the active work of the organization. The name of the association was changed from the Wyoming Independent Oil Men's Association to the Rocky Mountain Oil & Gas Association, the latter name being considered as more expressive of the attitude of the members toward the Standard interests. The directors, according to their statement to local papers, found there were many points of contact between the Standard and the independent operators, and that on the whole their aims and interests coincided, and no effort will be made to bar representatives of the Ohio, Midwest, etc., from membership.

Membership will be divided into three classes—active, affiliated and honorary. Any person of good standing actively engaged in oil operations in the Northwest may become an active member of the association, but the Standard companies are limited to ten representatives each. The Board of Directors was increased to seventeen in number, and every important field in the State is represented on the board through some operator therein. The directors adopted the constitution and by-laws drawn up by the committee of five appointed on the day of organization.

An election of officers held by the directors resulted in the choice of ex-Governor B. B. Brooks as president of the association, with T. F. Algeo as vice-president and Patrick Sullivan as treasurer. C. B. Richardson served as temporary secretary, and so far no permanent secretary has been chosen. Both Mr. Brooks and Mr. Richardson are connected in executive capacity with the Consolidated Royalty Oil Co., one of the prominent independent companies operating for the most part in the Salt Creek field; Mr. Algeo is vice-president of the Sinclair Wyoming Oil Co., one of the affiliated Sinclair companies; Patrick Sullivan is a local financier, and one of the big men of the Salt Creek Consolidated Oil Co., the Glenrock Oil Co. and others of the larger independents.

The directors' meeting lasted the better part of two days, and the second day was given wholly to a discussion of the relief measures to be taken up and put over by the new organization.

DENVER, Dec. 2, 1921.

The Rocky Mountain Oil & Gas Association, which was formed last week at Casper, Wyo., by independent owner-operators, has invited the Midwest Refining Co., the Ohio Oil Co. and the Standard Oil Co. (Ind.) to designate one or more officials to attend a conference with a committee from the association on higher prices for crude petroleum and the differential between Oklahoma and Wyoming crude oils.

Decision will await the return of President Blackmer, of the Midwest Co., from Texas.

Dutch Oil Export Tax Dropped

A special cable from The Hague to the New York Times, dated December 7, says that the proposal to levy an export tax on the Dutch East Indies output of the Royal Dutch Oil Co., which has caused a considerable stir in Holland, especially in view of the company's threat to abandon its activities in the Dutch East Indies, including operations in the much-disputed Djambi oil fields, has been definitely dropped, according to a semi-official report.

PACIFIC COAST OIL INDUSTRY REPORTED ON BY TRADE COMMISSION

Independents on Coast Had Body to Fix Prices—Royal Dutch Shell Controls Union Oil Co.—Standard's Dominant Position

WASHINGTON, Dec. 6, 1921.

Responding to direction by the Senate through a resolution introduced by Senator Poindexter in the first session of the 66th Congress, the Federal Trade Commission has sent to the Senate Part II of its report on the Pacific Coast Petroleum Industry. Part I was submitted months ago.

Part II deals with prices and competitive conditions, and shows among other things, that the independents on the California coast were in an association which fixed prices; that the Standard Oil Co. (California) was not a member of this association but that the association followed the price which the Standard named. The report also shows that the Royal Dutch-Shell combination has acquired control of the Union Oil Co., of Delaware, which owns a large interest in the Union Oil Co., of California, and that the Standard is acquiring stock in the Pacific Oil Co., which also controls the Associated Oil Co. In this connection written statements by Royal Dutch-Shell and Standard Oil representatives contained in the summary are significant. The Union, the Pacific and the Associated are among the largest crude oil producing companies of California.

Agreements on Prices

The report contains a large number of letters and documents giving in detail what purports to be evidence of agreements and understandings covering prices. In this connection it is related that early in 1915, before the members of the Independent Petroleum Marketers' Association, of Los Angeles, arrived at any understanding on prices, a resolution was passed which stated:—

Now, therefore, be it resolved that this organization, as a body, refrain from talking prices or combinations at any of the association meetings, and that the president of this association be empowered to forbid any discussions or references in any way pertaining to prices or combinations in restraint of trade at any meeting of this association.

The minutes of the association contained no reference to price activities of members, as price discussion and price agreements took place at "informal meetings." According to the association's secretary these price meetings were held after the regular association had adjourned, or at other offices, at which time members are claimed to have "done the real thing they are interested in." On September 22, 1915, the association members agreed to maintain the prices named by the Standard Oil Co., and this information was promptly given to the Standard's Los Angeles manager, who forwarded it to the home office. The following day, September 23, the Standard Oil Co. advanced its price and this advance was followed by the other marketers. This practice has been generally followed up to the present time.

The agreements, according to the report, included bids covering requirements of the city of Los Angeles, where in December, 1916, and in January, 1917, memoranda of association meetings show that only four companies, Standard Oil Co., Union Oil Co., Western Oil Co. and the California Oil & Asphalt Co. were to bid on city requirements, and that "it was agreed all should bid 1 cent off open tank wagon market prices at time and place of delivery." The first three companies submitted bids at the agreed price on both occasions. The city of Los Angeles rejected the December bids and identical bids were agreed upon in January, 1917, and the city was forced to purchase in the open market and to pay the agreed price.

One of the methods employed by the association members in inducing retailers to sell at regular retail prices is illustrated by an agreement which was made early in 1917, that members of the association would not sell the Five Mile House on El Monte road unless it displayed the regular 20 cent retail sign.

The letter of submittal, which briefly summarizes the report, follows:—

To the President of the Senate.

Sir:—The Federal Trade Commission submits herewith part II of a report on the Pacific Coast petroleum industry, pursuant to Senate resolution 138, Sixty-sixth Congress, first session.

This part deals with prices and competitive conditions, especially in the Pacific Coast region. Part I, which was submitted to the Senate on May 2, 1921, discussed production, ownership and profits. These two parts cover the information requested in the Senate resolution directing the investigation.

The more important facts developed in this part of the report may be concisely stated as follows:—

1. Five large companies, viz., the Standard Oil Co. (California), the Union Oil Co. of California, the Associated Oil Co., the Shell Co. of California, and the General Petroleum Corporation, produce and purchase the bulk of the crude petroleum produced in California, and refine and market most of the petroleum products sold in the Pacific Coast territory, which includes the States of California, Oregon, Washington, Arizona, Nevada and a part of Western Idaho. In 1919 the crude petroleum production and purchases of these companies constituted over 80 per cent. of the total production in California, while they refined and marketed fully 90 per cent. of the petroleum products obtained therefrom.

2. The Standard Oil Co. was the most important factor both in the production and purchase of crude petroleum and in the sale of petroleum products. The prices announced by the Standard for the purchase of crude petroleum and for the sale of petroleum products are generally followed by the other California companies.

Prices Down in 1914-15

3. The prices of crude petroleum declined during 1914 and the early part of 1915, and profits in the crude petroleum producing business of California were low, but beginning in the latter part of 1915 and continuing until 1920 prices advanced rapidly, and this branch of the industry became very profitable. The prices of heavy crude petroleum, for example, increased from 35 cents per barrel in January, 1914, to $1.60 per barrel by the end of 1920.

4. The Standard Oil Co.'s fuel oil prices are based upon the prices named by it for the purchase of heavy crude petroleum to which are added its transportation and handling charges. The price of fuel oil at refineries on San Francisco bay increased from 80 cents per barrel in January, 1914, to $2 by December, 1920.

5. The retail price of gasoline at San Francisco increased from 15.5 cents per gallon in January, 1914, to 27 cents per gallon before the end of 1920. The wholesale tank wagon price of kerosene at San Francisco remained at 9 cents per gallon from January, 1914, to August, 1918, after which time it advanced rapidly to 16.5 cents by the end of 1920; kerosene price changes are influenced largely by conditions in the export market. While the increase in the prices of these refined products were not so marked as the advances in crude prices, owing chiefly to less pronounced increases in transportation, refining and marketing costs, the refining and marketing departments of the large companies, during the later years of this period, especially in 1919, made on the average much higher rates of profit on investment.

Prices Up 1916 to 1920

6. From 1916 to 1920, a period of marked price advances, the wholesale prices of the large marketing companies for gasoline and engine distillate sold to garages and other resellers were practically uniform, as were also the retail prices at their own service stations.

7. There was keen competition in the sale of gasoline in California during 1914 and part of 1915, which led the small refining and marketing companies in Los Angeles and vicinity to organize the Independent Petroleum Marketers' Association. In 1916 the Union Oil Co. and the General Petroleum Co. became members of this association, and in November, 1920, the Associated Oil Co. also joined. The Standard Oil Co. and the Shell Co. were the only large California marketing companies that did not become members of this association. Since September, 1915, members of this association have agreed among themselves to maintain the prices announced by the Standard Oil Co., and in order to maintain these prices they adopted the same differentials and classifications of customers as were used by the Standard. They listed, and pursuant to agreement refused to sell retailers who sold below the agreed price until such retailers maintained list prices. The association also prepared a list of recognized peddlers to which no new names were to be added.

8. During the period 1915-1919 the Los Angeles district sales manager of the Standard Oil Co. was promptly informed by a member of the Independent Peteroleum Marketers' Association of all important understandings and agreements affecting price maintenance reached by that association, and this information was promptly forwarded to the Standard's main office, which was also advised how well these agreements were carried out, thereby placing the Standard in a better position to know when a new price advance would be followed.

9. Since the fall of 1915 certain sales managers and local representatives of certain large marketing companies, particularly of the Standard Oil Co. and the Union Oil Co., frequently conferred and usually arrived at an understanding as to the differentials in the prices to be charged to individual customers and to various classes of purchasers. Presidents of the Standard Oil Co. and of the Associated Oil Co. deny that these practices were either consented to or known by the higher officials of their respective companies.

Royal Dutch-Shell Control

10. The Royal Dutch-Shell combination controls about 2½ per cent. of the crude petroleum output of the United States and, according to current reports, is now about to acquire the Union Oil Co. (Delaware), which would increase its control to about 3 per cent. of the total production of this country.

11. The Standard Oil interests occupy the same dominant position in the petroleum industry of the United States as in California and usually take the initiative in price changes; the companies which were separated by the dissolution decree of 1911 do not compete or invade each other's marketing territory to any important extent. Recently a revival of the policy of absorbing independent petroleum interests has been made evident by the acquisition by elements of the Standard group of a substantial control over the Humble Oil & Refining Co., the Midwest Refining Co. and the Sinclair Pipeline Co.

Upon information that the Standard Oil Co. (California) had acquired or was acquriing an interest in the Pacific Oil Co., inquiry was made by the commission of the Standard as to the truth of this report, to which inquiry K. R. Kingsbury, president of that company, replied in part as follows:—

"A material part of the production from the lands owned by Pacific Oil Co. has for many years been delivered to our company under contract for use in our refineries. With the knowledge that the control of Pacific Oil Co. was sought by foreign interests, which if effected would have undoubtedly resulted in the loss of this oil to us, we deemed it important to further the maintenance of the American ownership of this company. We also knew that these same foreign interests, which operate in California, were also negotiating for an interest in an important California oil company with which they are in competition. These negotations have since been consummated.

"In view of this situation the Standard Oil Co. (California) entered upon the acquisition of a minority interest of Pacific Oil Co. stock and now owns less than 20 per cent. of that stock. No purchases of the stock have been made by us for some months past."

Mr. Kingsbury's statement that "control of the Pacific Oil Co. was sought by foreign interests," referred to the Royal Dutch-Shell group.

Inquiry was made of the Royal Dutch-Shell group by the commission whether it had acquired or was acquiring any interest in the Pacific Oil Co., to which Gen. Avery D. Andrews, representative of the Royal Dutch-Shell group, replied as follows:—

"Replying to your telegram November 21 received 22 I am now authorized to state that the Dutch-Shell interests, by which I mean Royal Dutch Petroleum Co. of Holland and Shell Transport & Trading Co. of London and their subsidiary companies, do not own and are not now acquiring Pacific Oil Co. stock."

12. This dominant position of the Standard group in the petroleum industry of the United States is due not merely to the magnitude of its various units with respect to production and capital investment, but also because of its solidarity, arising apparently from an interlocking stock ownership resting largely in the hands of a few great capitalists and from its great financial resources and credit.

AMERICAN PETROLEUM INSTITUTE HOLDS AN OPTIMISTIC MEETING

Problems of Past Year Did Not Wreck Belief of Leaders in Future of Petroleum Industry in United States

CHICAGO, Dec. 8, 1921.

With an attendance of upward of 500, and an obvious spirit of optimism plus dare and do, the second annual meeting of the American Petroleum Institute, held at the Congress Hotel, Tuesday, Wednesday and Thursday of this week, may well be looked upon as the most noteworthy event of the year in petroleum circles, not even excepting the ups and downs of the crude market. Men at the top of the several divisions of the industry have been here and have told their experiences in the trying year now closing and emphatically declared their faith in the future.

Discussions during the meeting, introduced through able papers by men well qualified for the various subjects, indicated that the purposefulness of the organization grows stronger. Every phase of the petroleum industry from the well to the automobile received attention. Especially was there thorough consideration of petroleum in its recently intensified relations to international affairs.

The meeting was divided into technical and general sessions, and concluded with the annual banquet this evening. Details of the several sessions follow:—

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R. D. Benson

FIRST TECHNICAL SESSION

Tuesday Forenoon, December 6

R. D. Benson, president, Tidewater Oil Co., occupied the chair at the first session of the Institute, which was devoted to the technical side, and had particularly to do with the problem of motor fuel.

The first paper was in the nature of a report by Van H. Manning, director of research for the Institute, and had to do with the possibilities for the production of motor fuel. The salient features of this report follow:—

QUANTITATIVE SURVEY OF THE PETROLEUM INDUSTRY FROM THE STANDPOINT OF PRODUCTION OF MOTOR FUEL

By Van H. Manning

The United States and Mexico are supplying 87 per cent. of the world's production, and including the output of Canada, Trinidad, Peru and Argentina, the Western Hemisphere is supplying 88 per cent. of the world's supply. The world's production in 1920 is estimated at 694,854,000 barrels, an increase of 150,000,000 over the preceding year, and an increase of 545,000,000 over 1900.

This great increase in the world's production in the past few years is prophetic of the future in that the tremendous absorption of petroleum and its products is due to the interpenetration by petroleum of all industries, whether of the factory or the field, land or sea, war or peace.

Growth of Internal Combustion Engine

To visualize the constantly increasing demand in the United States for petroleum products, we must consider the facts. There are about 10,800,000 engines, such as automobiles, trucks, farm tractors, stationary engines and motor boats now in use in the United States. It is estimated that in 1923 there would be over 13,500,000 of the above mentioned types in use, exclusive of the air craft.

It is a conservative assumption that there will be 9,500,000 motor vehicles registered in the United States at the end of this year. At the end of 1911 there were 700,000 automobiles in use; that is, in ten years motor vehicles have increased 1,257 per cent. The yearly figures on registration reveal percentage increases in leaps and bounds. In 1912, automobile motor vehicles increased 46 per cent. over 1911; in 1913, the increase over the previous year was 25 per cent.; in 1914, 34 per cent.; in 1915, 43 per cent.; in 1916, 44 per cent.; in 1917, 42 per cent.; in 1918, 28 per cent.; in 1919, 23 per cent., and in 1920, 22 per cent. We operate approximately six-sevenths of the motor-driven vehicles of the world.

Increase in Motor Fuel

It is estimated that of our total daily production of 1,300,000 barrels, probably more than 1,000,000 barrels, or 76.92 per cent., is so-called light oil. As it transpired, the great petroleum development in the mid-continent field and in the Rocky Mountain field has brought, in most cases, a light oil to the surface. The consequences to the automotive industry had this development resulted in a heavy oil production would obviously have been very serious. An instance of nature's bounty on the qualitative side of crude oil production is supplied by California. In 1907, light crude (18 deg. Baume and over) production was only 34 per cent. of the total. In 1919, it had increased to 68 per cent. This increase has made it possible to obtain a larger percentage of gasoline.

Assuming that the consumption requirements per car in 1911 were the same as in 1920, a like increase of 1,257 per cent. in the production or availability of gasoline was necessitated to take care of automotive requirements.

The petroleum industry has been able to meet the automotive industry's increase of 1,257 per cent. from 1911 to 1920 with an increase of only 101 per cent. in crude oil production. There is no more striking picture of the pressure of automotive fuel requirements upon our oil resources than that of the "per car availability" of our crude oil production each year. For instance, in 1911, 315 barrels of crude oil for each car; 1912, 219 barrels; 1913, 194 barrels; 1914, 155 barrels; 1915, 115 barrels; 1916, 86 barrels; 1917, 67 barrels; 1918, 58 barrels; 1919, 50 barrels, and 1920, 48 barrels.

How the Motor Fuel Requirements Have Been Met

As indicated by this comparison of motor vehicle growth with the gains made by the petroleum industry, the increase in crude oil production (despite also the high grade of the oil brought to the surface) was actually insufficient to meet automobile requirements.

In the early days of the automobile the average commercial yield of gasoline from crude was under 11 per cent. Today it is above 25 per cent.

When the actual increase registered by crude oil production and what these increases have meant in work and money in the oil fields are considered, one is forced to the conclusion that the decline in production per car is becoming a serious factor. In 1909, there were 165,000 producing oil wells in the United States and 1,149 wells drilling. The latest figures show that there are now something like 260,000 producing oil wells and 4,289 wells drilling. In the same period 51,000 non-productive wells were drilled. Nature has been more than fair in giving us a crude production, the greater part of which is light oil with a substantial gasoline content. The percentage of gasoline in the crude oil varies widely, and the refinery yield of gasoline varies according to the quality of the crude run and the commercial results desired.

Without the subsequent perfection of important refining processes, the development of the natural gas gasoline industry and the spreading of the quality range of commercial gasoline, the production of crude oil would have been all too insufficient. The growth of the automobile industry would have come to a standstill several years ago, or, rather, instead of advancing at the rate of 40, 30 and 20 per cent. annually would have more nearly approximated the relatively modest advances in our crude oil production. Of course, this is merely a supposition. It has many variables, but too much stress cannot be placed on the extremely important part science has placed on the quantitative side of the motor fuel problem.

Gasoline is obtained from three principal sources. First, from crude oil by distillation; second, from natural gas by compression and absorption processes, and, third, by the various cracking processes. In addition to the gasoline produced in these ways, we obtain comparatively small amounts of motor fuel from other sources, notably benzol, derived from coke ovens and illuminating gas plants. The production of benzol is, however, very small compared with the production of gasoline, so that it need not enter into the present discussion.

Production of Gasoline

From reports of the Bureau of Mines and the Geological Survey, tables have been compiled showing the production of gasoline in five-year periods. These tables are very interesting as showing the tremendous increase in the production of gasoline. Our total production of gasoline in 1904 was approximately 7,000,000 barrels; in 1919, 13,000,000 barrels; in 1914, 35,000,000 barrels, and in 1919 more than 111,000,000 barrels.

The amount of crude oil which went to the refineries increased in the same time from 67,000,000 barrels in 1904 to 361,000,000 barrels in 1919. There is shown first the amount of crude oil actually refined; second, the production of straight run gasoline; third, the percentage of straight run gasoline, which amounted to 10.3 per cent. of the crude refined in 1904, and increased to 20.7 per cent. in 1919. This means that in 1904 the refineries were obtaining only 4.33 gallons of straight run gasoline per barrel of crude. In 1919, they were obtaining 8.69 gallons per barrel of crude. It is interesting to note that the production of gasoline in 1909 was practically at the same rate per barrel of crude as in 1904, whereas this rate had increased tremendously by 1914, and was still higher in 1919.

Deficit If Quality Was Same as 1904

It is obvious that as you take more gasoline from a barrel of crude the volatility of the product must be lower; in other words, it must have a higher end-point. Let us assume that conditions today were the same as they were in 1904; that is, that we were producing straight-run gasoline only and that its volatility were the same as in 1904. We are using today practically all of our gasoline. We had gasless Sundays in 1918; we had a local gasoline shortage in California in 1920, and we are entering the winter this year with stocks no greater than normal.

The automotive engineers have stated that the average car wastes considerable gasoline, and if the quality of gasoline was the same as in 1904 that the average driver would be getting considerable greater mileage per gallon of fuel. If we were making a product similar to that of 1904 we would be faced by a tremendous deficit in our gasoline supplies.

In 1909 gasoline production by the United States refineries totaled 540,000,000 gallons. In 1920 the production was 4,882,000,000 gallons. This compares with a crude oil production in 1909 of 183,171,000 barrels and in 1920 of 443,402,000 barrels. Thus we see that despite an increase of only 142 per cent. in our crude

Van H. Manning

Table I

GASOLINE PRODUCTION (Barrels of 42 Gallons).

Year.	Total* gasoline.	Natural-gas gasoline.	Cracked gasoline.	Straight-run gasoline.
1904	6,920,000	.....	.....	6,920,000
1909	12,900,000	.....	.....	12,900,000
1914	34,915,000	1,016,000	.....	33,899,000
1919	111,553,000	20,275,000	16,733,000*	74,545,000

* Estimated 15 per cent. of total gasoline.

Table II

PRODUCTION OF STRAIGHT-RUN GASOLINE

Year.	Crude oil refined.	Straight-run gasoline.	Per cent.	Gallons per barrel.	Per cent. of— 1904 output.	Per cent. of— 1909 output.
1904	66,983,000	6,920,000	10.3	4.33	100.0	49.7
1909	120,775,000	12,900,000	10.7	4.49	103.7	51.7
1914	191,262,000	33,899,000	17.7	7.43	171.5	86.5
1919	361,520,000	74,745,000	20.7	8.69	200.7	100.0

oil production our gasoline output has been increased 804 per cent.

Foreign Sources of Supply

The imports of crude petroleum during 1920 were about 106,000,000 barrels (42 gallons) and the exports were 9,000,000 barrels; in other words, the imports were approximately twelve times greater than the exports. The converse is true of the exports and imports of refined products. The exports of refined products during 1920 were about 67,000,000 barrels and the imports about 2,600,000, the exports being twenty-five times greater than the imports.

In the United States there has been refined a considerable quantity of imported Mexican oil. In 1914 United States refineries ran approximately 6,000,000 barrels of Mexican crude; in 1919, 38,000,000 barrels, and in 1920, 63,000,000 barrels.

There are no available statistics showing the commercial yield of gasoline from foreign crude run by United States refineries, but authorities estimate it to be about 10 per cent. This would indicate that the production of gasoline from domestic crude in 1920 was supplemented by 6,300,000 barrels, or 264,600,000 gallons obtained from foreign crude. Added to this are imports of gasoline and naphthas in 1920, totaling 43,066,000 gallons.

These are the salient facts showing how the petroleum industry has met the automotive demand for gasoline. The efforts have been little less than heroic.

Crude production since 1911 has been increased 100 per cent.

Refinery practice has been revolutionized.

A new industry—the natural-gas gasoline industry—has been established.

Foreign oil has augmented the domestic supply.

No less heroic have been the efforts of the automotive industry to meet the motor-fuel problem. Numerous improvements have been made in engine construction—self-starters, short manifolds, hot-spot manifolds, provisions for heating intake air—all of which are of great value in making possible the use of fuels of low volatility. It is obvious that fuel requirements could never have been met without the utilization of gasoline of low volatility.

There should be no concern over a future supply of motor fuel. We have now four possible sources:—

1. From our domestic wells.
2. Foreign resources.
3. Oil shale.
4. Substitutes; as, for example, alcohol. As the domestic supply of oil diminishes and we have to depend upon any other source the natural sequence will be a higher price for motor fuel.

The interests of these two great industries (oil and automotive) can best be served by a joint systematic study of the problems involved on a uniform plan.

Edward S. Jordan, president, Jordan Motor Car. Co., representing the National Automobile Chamber of Commerce, reviewed the automotive industry on the basis of quantity production. He said that his industry was down to "brass tacks" and voiced the belief that users of motor vehicles have a crying need for a standard fuel.

Speaking on "Qualitative Limitations in Refining and Marketing," Frank A. Howard, development manager, Standard Oil Co., of New Jersey, gave an intimate resume of present day refinery practice.

H. M. Crane, consulting engineer, was the next speaker. The high points of his address follow:—

VOLATILITY OF MOTOR FUEL AS MARKETED IN THE UNITED STATES

By N. A. C. Smith

It seems to be generally accepted that the quality of gasoline is best indicated by its distillation range. Other tests are of value, especially for research into the essential characteristics of fuels, engines, carburetors, etc., but the results of properly conducted distillations are usually the basis for judging commercial gasolines.

In fact, the Bureau of Mines has relied largely on distillation tests in conducting its periodical surveys of the motor gasoline sold throughout the country. In 1915, when the first of these surveys was made, there was considerable confusion among petroleum chemists as to how gasoline should be tested. The distillation method adopted by the bureau in that first survey was very different from the method since perfected and now used almost universally, and the figures as given in the first report are rather difficult to translate.

In 1917 the bureau was asked to make another survey in connection with the demand for motor fuel caused by the war. In 1919 a still more extensive survey was undertaken at the request of the Fuel Administration, which used the figures as a basis for the present Federal specification for motor gasoline, commonly known as "new navy gasoline." The results brought out in 1917 and 1919 were so interesting that the bureau has felt it wise to keep in closer touch with the situation, and limited surveys were made in January and July, 1920 and 1921.

I have plotted on this chart the average distillation range of the gasoline included in each of these surveys. Each vertical line represents one survey and is graduated in degrees Fahrenheit. I have marked on each line the position of the initial boiling point, the 20 per cent., 50 per cent., 90 per cent., and end points of the average gasoline, and have connected these points as you see.

We can thus compare each individual point and trace the changes over a period of years. You will note that the initial boiling point has increased slightly on the whole, but individual fluctuations from one survey to another indicate that seasonal variations are probably more important than any definite trend toward a change in quality. The same is true of the 20 per cent. point. The 50 per cent. point shows a slight increase from one survey to the next, but this is comparatively small when compared with the curves for the 90 per cent. and end point. These two curves run almost parallel and show that the net change in quality during the past six years has been to increase the amount of high boiling material in the gasoline.

Volatility Changes

To simplify matters, I will confine my discussion to the end point curve. This has in general gone up, reaching its maximum in the summer of 1920, thus confirming the complaint that there has been a progressive decrease in volatility. But as Dr. Manning has pointed out, this has been unavoidable if we were to keep our cars and trucks running. In general the automotive engineers agree that this is so, although they say there is a point (location unknown) beyond which we cannot go. In other words, if we get a fuel of a certain high end point the engine cannot use it. Just where this point is we do not yet know, and it is probable, moreover, that improvements in the design of engines and carburetors will allow fuels to be used in the future which cannot be handled successfully today.

These same automotive engineers, however, further claim that there is an undue variation in the gasoline sold in the same district at the same time. They say, for example, that if a man goes to a filling station, fills his tank with a certain grade of gasoline, drives to a neighboring city, and while there goes to a filling station of another company, he is likely to get an entirely different grade of gasoline. If his car is properly adjusted before he leaves home, he will get to his destination very successfully, but he is liable to have trouble on the return trip due to the change in fuel.

Variation in Quality

The Bureau of Mines' surveys show that there is some truth in this claim of variation. Even samples of gasoline taken from different filling stations in the same city on the same day vary considerably. On the other hand, it is usually found that the gasoline made by each company is of fairly uniform quality and considerable of the variation therefore must be explained as due to differences in trade and refinery practice. Crudes are not all alike, and gasoline is not the only product, so it takes wide experience nad seasoned judgment to balance refinery output with marketing conditions. An occasional sample shows that in the oil trade, as in all others, a few dealers sail under the skull and crossbones and handle the worst product they can get away with. I am very glad to say that the figures show these pirates to be very few and far between.

Explain it how we will, considerable differences exist in the various gasolines marketed, and my second chart is intended to show these differences. It is obviously unfair to take the best sample and the worst sample in a series and compare them, so I arrived at the figures shown by taking the best 10 per cent. and the worst 10 per cent. That is, there were forty samples in the 1915 survey; I picked out the four with the highest end point and the four with the lowest end point, and averaged each four; in 1919 we had 850 samples; I picked out the 85 samples of the highest end point and the 85 samples with the lowest end point and averaged each 85. The same process was used on the other surveys.

Interesting Relationships

A number of interesting relationships are brought out by these figures. The upper curve which represents the "maximum end point" and the lower curve for "minimum end point," in general follow the average end point curve, as shown on the first chart. However, since 1917, these curves have been growing closer and closer together, showing that the refining industry has been, and undoubtedly still is, getting closer and closer to a standard practice in the production of gasoline. In other words, the demand of the automotive industry for a uniform gasoline is being better and better met as time goes on, and it seems reasonable to assume that this tendency will continue until we have a product which is as nearly uniform as can commercially be made.

R. E. Wilson, director of research, Laboratory of Applied Chemistry, Massachusetts Institute of Technology, contributed a paper to the general discussion of motor fuels, expressing his opinion in part as follows:—

WHAT CONSTITUTES TRUE VOLATILITY?

By R. E. WILSON

It is generally recognized that present-day fuels are less satisfactory than the more volatile fuels of ten years ago in four important respects. The principal difficulties observed are:—First, poor distribution, due to unvaporized drops of gasoline, which results in waste of fuel; second, difficulties in starting in cold weather; third, dilution of the crank-case oil; fourth, excessive tendencies toward knocking.

These changes have gone hand in hand with an increase in the average and final boiling points of the fuel, and more rigid boiling point specifications are generally considered as the best way of overcoming all four of these difficulties.

It is my belief, however, that if progress is to be made in the important direction of increasing the supply of motor fuel and at the same time making possible its more efficient utilization, boiling points specifications must be replaced by others which measure more specifically the suitability of the fuel from the standpoint of the four above-mentioned sources of trouble.

It has frequently been stated that too rigid specifications halt progress, and this has indeed too often been true. Indeed, in many cases standard specifications have merely taken the place formerly filled by "established practice" and age-long prejudice in making any change impossible, but this has been the case mainly where the specifications have covered non-essential properties or superficial indications, rather than the fundamental requirements for a given purpose. Examples of such unsatisfactory specifications are those covering the gravity of gasoline, which a few years ago was considered to be the one all-sufficient test of quality, and the specification of a very low maximum boiling point for aviation gas during the war which is reported to have required a sacrifice of three gallons of ordinary motor gasoline to produce one gallon of the high test fuel; whereas practically the only advantage of such very high test gas for the purpose in hand was the prevention of knocking, which could have been accomplished far more readily in other ways.

When, however, specifications are simplified so as to cover only the essential points which actually cause difficulty, by measuring directly and accurately the properties which make trouble, specifications become an aid instead of a hindrance to progress, since they afford significant tests to measure the value of various developments in refining, methods of blending, new types of fuel, etc.

In view of this situation the writer suggests the use of two specific tests for volatility which he outlined in detail, and a single test for the knocking tendency of the fuel, these to replace all the arbitrary limitations as to the precise location of the boiling point curve at several different points. It is believed that specifications based on these tests would insure more satisfactory fuels and yet would make possible more leeway in refining and blending, and thus constitute an aid rather than a hindrance to progress in increasing the supply and simultaneously improving the quality of motor fuels.

A paper of intense interest to oil men because reflecting a widely prevalent complaint among consumers of gasoline, was that by C. K. Francis, chief chemist and technical superintendent, Cosden & Co. Mr. Francis said in part:—

REQUIREMENTS OF MOTOR VEHICLE FUEL

By H. M. Crane

The tremendous development of the automotive industry resulted from an available supply of fuel particularly suited to the required service due to the fact that it allowed of an extremely simple engine design. We had the gas engine operating on city gas and gasoline (then a surplus product) fuel, liquid at ordinary atmospheric temperature, which could readily be transformed into gas when required at ordinary engine temperatures. The best distillation limits are probably between 150 degrees and 350 degrees F., due to the general reasons above.

Unfortunately, this constitutes too small a portion of crude oil to meet the requirements of automotive fuel today, and by improvements in methods we have gradually been able to use more and more of the less volatile portions, although in every case it has been at the expense of simplicity of operation and apparatus. It is the opinion of automotive engineers that with the present form of engine and the present simplicity, we have very nearly reached the limit for automotive uses at the present distillation point of fuel at the higher end.

Gasoline brings an unusually high price per heat unit due to its utilization and efficiency. Kerosene has more heat units per unit of volume and yet sells at a lower price. We feel that this is a practical demonstration of what is a good fuel, and is even more important than a theoretical consideration which we may advance as engineers. We feel also that there is a greater saving in cost possible in the utilization of kerosene as a fuel, but it has been clearly before the engineers in the last fifteen years that the fact that we have not been able to use it successfully is a fairly clear indication of the almost insuperable difficulties in the way.

Automotive engineers realize fully that the success of the automotive industry depends upon adequate fuel supplies at a reasonable price, and that with present knowledge it is evident that an adequate supply of best fuel is not available at any price. We do urge, however, that every possible effort be made by refiners to make the fuel supply more suitable for use in the really only simple form of engine now available. We also maintain that a great degree of simplicity in our engines is required if a reasonable degree of economy in the use of fuel is to be expected when handled by unskilled persons.

A half hour or so was devoted to a general discussion of motor fuel problems, then N. A. C. Smith, petroleum chemist, U. S. Bureau of Mines, presented a paper on "Volatility," saying in part:—

PRESENT VARIATION IN THE QUALITY OF MOTOR FUEL: ITS EXTENT AND CAUSES

By C. K. Francis

Within a very few years we have seen the beginning and the development of the motor fuel market.

At first little attention was given to the characteristics of gasoline, but, with the development of the market and favorable prices, methods were devised to classify this product. The original test was that of gravity, but it has been found that gasoline varies from 45 to 68 deg. Baume gravity, and that this wide variation is not necessarily due to any inferiority. The property of gravity is now recognized to be of little value as an index to the energy value of a motor fuel.

Another characteristic of gasoline, but one which does not vary much, is that of color. The usual gasoline is water white in color, although a gasoline having a slight yellow tint may not be objectionable, and, in truth, may be better for motor use than one which is water white.

The quantity of sulphur occurring in gasoline is important.

A good grade of gasoline seldom contains more than 0.01 per cent. total sulphur, but gasolines have been found on the market containing six times this quantity. The deleterious action of the free sulphur becomes apparent when it is present to the extent of 0.008 per cent., and vary bad and corrosive in action when it is present to the extent of 0.018 per cent.

The percentage of unsaturated compounds serves as an indication of the method of manufacture, but does not give a direct indication of the behavior of the gasoline in the motor. Some authorities believe that the unsaturated hydrocarbons have a greater power than the saturated compounds.

Good gasolines should not produce more than 0.01 per cent. gum. This gummy material is very objectionable because it is often deposited on parts of the carburetor and on the valves. If the product is properly refined, that is, treated with sufficient quantities of sulphuric acid, the gum should be thoroughly removed. However, I have seen specimens of gasoline absolutely free from this gummy substance which contained considerable quantities of it after having been stored for a year or when exposed to a strong light, such as the ultra violet rays. It is therefore reasonable to conclude that gasoline may be so altered during storage, though in perfect condition in the beginning, as to be an undesirable product for use in a motor.

All gasolines should be free from acid, and products which may decompose and form acid. During the treating processes certain substances are frequently formed which are known to decompose rapidly at 280 deg. F. and slower

at ordinary temperatures. These substances cause the darkening of refined oils, and sometimes a deposit which contains small quantities of free acid, apparently closely related to the gum just mentioned, may be found at the bottom of the container.

Volatility has probably received more attention than any other property of gasoline. There is no agreement as to just where the volatility should be concentrated. Objections may be cited to motor fuels in which a large part is distilled at a comparatively low temperature; the same may be said for the fractions at the end. (The body of gasolines is fairly constant.)

What Is Gasoline?

To quote from a recent United States Bureau of Mines publication:—"Although gasoline is one of the most familiar commodities of today, yet the public has meager information regarding it."

The subject is so broad that it is very difficult to say just what gasoline or just what specifications will insure the best motor fuel; indeed, the methods for testing gasolines have not been thoroughly standardized. The most important test at this time is that of distillation, yet I venture to say that there are not half a dozen firms represented here who make this test in identically the same manner.

The universal adoption of a gasoline meeting close specifications would undoubtedly be disastrous to the motor industry, and certainly to the petroleum industry. It would result in vast quantities of motor fuel having to be discarded at the refinery, and a high price being put on the gasoline.

It is obvious that the builders of motor engines should concern themselves in a more efficient and economical utilization of gasoline. The refiner, I am sure, will always be glad to co-operate, and you may rest assured that when the limits of motor fuel have been determined and the market requires a special product, the technical skill and ability of the refiner will be found capable of producing it.

Following some more general discussion the first technical session was adjourned.

FIRST GENERAL SESSION

Tuesday Afternoon, December 6

As soon as he had called to order the first general session, Tuesday afternoon, President Thomas A. O'Donnell proceeded with the reading of his official address, his remarks being tinged with optimism of a practical sort. The salient features of the presidential address follow:—

ADDRESS OF THE PRESIDENT

I think I can speak for the entire petroleum industry of this country when I say to our President:—"May God be with you in your effort to curtail the senseless competition in armament now going on throughout the world." We will gladly forego any possibility of profits to the industry in supplying our navy with its fuel oil, but in the event that the rest of the world is not prepared to join us heartily in accomplishing the purpose, our first line of national defense will continue to be our navy. And with no intention of aggression against the rest of the world we should and will have a navy equal to the task of repelling attack, no matter how or where organized, and, as oil will be the motive power of present and future navies, I can assure our people that the fear of lack of future oil supply need not deter them from building a navy of sufficient size to meet necessary requirements. There will always be within the boundaries of the United States for at least the next one hundred years sufficient oil to supply the motive power necessary for such a navy.

Aside from the interest, as American citizens, in the Armament Limitation Conference in

T. A. O'Donnell

Washington, the petroleum industry may be interested in knowing what effect, if any, the curtailment of navy development will have on the petroleum industry. In this connection, I might say that the navy is now using less than two per cent. of the oil produced in this country, measured as crude oil, or four per cent. of our fuel oil production. So, curtailment of navy development would have very little, if any, effect on the petroleum industry as a whole.

"Super-Scientists" and the World's Oil

Relative to the world's future oil supply, we still have with us a rather over-production of super-scientists who are constantly measuring the petroleum resources of the world and point out various kinds of disaster following its exhaustion within a few years. We also have some very able writers with a great command of the English language and a free use of mathematics who, by using the statements of our scientists as a basis, are writing some wonderfully interesting articles; some, no doubt, merely for the purpose of interesting the public and others as a part of propaganda to create prejudice against some of the foreign nations. In any event, to say the least, it gives an exaggerated viewpoint to the public mind as to the immediate danger confronting the country through lack of the necessary petroleum resources of the future.

While not overlooking the immeasurable possibilities of the requirements of the future, I have not changed my views during the last year to the effect that the predictions of exhaustion frequently made by well-meaning and conscientious scientists are grossly exaggerated and misleading, and, while I can quite readily agree that the consumption of petroleum in this country may increase to a volume beyond all possibility of being supplied from our own resources, I would not consider a failure to supply the entire demand as a menace to our industrial life.

It seems at this time that the most useful purpose to which petroleum can be put is the supplying of fuel for the internal combustion engine and the lubricating of machinery. Economic pressure adjusted by price fluctuation will, in time, gradually and in an orderly way increase the production of gasoline from the crude oil produced, and eliminate the use of oil, under steam boilers, on railroads and by manufacturing plants. This economic pressure is in the slow process of development. We are gradually perfecting processes of cracking down the heavier parts of petroleum into gasoline. . . . We are still using over 200,000,000 barrels of fuel oil in this country, a large part of which, through improvements in methods and expense of installation of plants, can be converted into gasoline for the use of the internal combustion engine.

Western Shales Good for Billions of Barrels of Oil

Another reserve that the country has is the shale bodies of the West that are capable of producing billions of barrels of fuel for the internal combustion engine whenever economic conditions will justify their production. However, I still believe billions of barrels of oil will be produced in this country from pools yet undiscovered and not taken into calculation by our scientific geologists, all of which, of course, does not mean that we will not have temporary shortages brought about by extreme consumption.

Exhaustion Is Slower Process

The exhaustion of petroleum is a much slower process than generally understood by those not familiar with the business. Although new pools under high pressure and large production per well constitute a very important factor in supplying the constantly increasing demands occurring in the past, the very foundation, however, of the stability of the petroleum industry of this country is largely due to settled production of the old wells not subject to the violent decrease in production of new wells.

It is not surprising that the general public is apprehensive as to the future supply when we take into consideration that in the press of the day reports are constantly being made of oil gushers with a capacity of 10,000 to 20,000 barrels per day, and then a short time afterward these same wells are found to be producing a comparatively small quantity of oil. The facts are that the general average daily production per well in the entire United States is about four and seven-tenths barrels per well, and, as the years pass and the old wells of small production accumulate they add increasing stability to the petroleum industry on a large scale. . . . We have many thousands of wells producing oil which, in the aggregate, form an important part of our supply that have, in many instances, been constant producers for periods of over forty years.

Statements of Early Exhaustion Unreasonable

With approximately 275,000 producing wells in this country and with a history of the stability of the small well for the past fifty years, and the constant discovery of new pools of great importance, the frequent statements that our petroleum resources will be exhausted within twenty years or less seem unreasonable. Whatever the future holds in store for the petroleum industry of this country, I think I am justified in asserting that there will be no precipitate and dangerous exhaustion—or collapse—of supply, thereby threatening our industrial life; also that the readjustment necessary will be brought about slowly and regulated by economic pressure which can be accomplished by practical substitutes adjusting the available supply to the most essential needs.

I believe that the petroleum resources of the world have hardly been scratched and that a free open-door policy with unrestricted opportunity for all people to prospect and develop in any part of the world to which their notion might direct their efforts would result in the production of sufficient oil to meet the requirements of all useful purposes to which it might be subjected for many generations.

Governmental Regulation of the Oil Operator

Unfortunately, there has been a worldwide tendency by all governments to regulate, direct, and restrict the petroleum operator in his efforts. A statement of an English statesman to the effect that "business organized by government and supported by political action is destructive and dangerous," applied to petroleum and its future to a greater extent, in my judgment, than any other line of development now taking place in the world.

The petroleum prospector and operator needs encouragement instead of restrictions and regulations, and if given the opportunity will produce wealth and prosperity in any part of the world where his efforts have been successful and he has been liberally rewarded. His profits, if any, are not represented by the wealth taken out of the country in which he has operated, but consist of the property rights established and the value of the business he has created and which remain in the country of his efforts.

I hope our sister republic of Mexico will not consider it unfriendly criticism when I advise them against a policy of taxation based on the possibilities of great gusher wells. The history of the petroleum industry in all parts of the world has been that the period of gusher is followed by extensive development of wells of smaller capacity. Mexico is now a great producing country, and it will continue to be so with increasing importance as the years go by if its statesmen realize the importance of encouragement by promoting the industry.

Stabilization by Shutting Down of Large Pools

One of the things that might be accomplished if permitted by law and be in the interest of conservation, stabilization, the producer and the public at large is an agreement to shut down large production pools during the period of seasonal accumulation of stocks, thereby preventing the usual waste necessary in carrying oil in storage and, at the same time, having the necessary supplies during peak of consumption. The fact that oil is fugitive and only has definite ownership when brought to the surface, and that our new pools are generally under high pressure and their discovery results in extreme activity in competition in development, causes destruction of values and frequently results in periods of over-production that are uncontrollable.

In a review of the current year, Walter C. Teagle, president, Standard Oil Co. of N. J., pointed out the necessity for including the petroleum industry among those to feel the prevalent depression, but declared that its future was bright. His address, in chief part, follows:—

THE CURRENT YEAR IN THE PETROLEUM INDUSTRY

By Walter C. Teagle

At this meeting I have been asked to make a few remarks upon a topic somewhat more circumscribed than that assigned to me last year. It is "The Current Year in the Petroleum Industry," but I have been given liberty, in fact, I have been dared to go outside my subject sufficiently to reconcile my prophecy of last year with subsequent dollar mid-continent crude, and to explain why the first symptoms of overproduction should so promptly have followed my diagnosis of overconsumption. I welcome the opportunity, for the experiences of the recent past have not modified my view of the long future, and I am hoping that after we together briefly review these experiences which are fresh in our minds, but which are possibly not yet sufficiently far away to be seen in their true perspective, you may, to some extent at least, share these views.

The Decline in Crude Prices

Within less than a month after our last meeting there appeared the first reaction in the buoyant markets for petroleum products which had been in evidence for years. Production was even then continuing to gather momentum, but the reduction in the crude requirements of refineries, consequent upon the lessening consumption of finished products, was translated almost at once into an intimation from some of the pipeline companies that they could run not more than 50 to 70 per cent. of the production offering.

When upon January 8 the price of Pennsylvania crude was reduced 25 cents per barrel from its peak of $6.10, the market reversal had definitely begun. Less than three weeks later the price of mid-continent crude dropped 50 cents from its high level of $3.50, and from then on the depreciation of market values continued until by midsummer the quotations of Pennsylvania and mid-continent crude revealed percentage declines of 63 and 71.6, respectively. For months these values, which, except for flush production, spelled loss to the producers, obtained, and it was not until the beginning of autumn that the turn came and Pennsylvania and mid-continent, beginning with a 25-cent advance on September 27 and October 1, respectively, continued on an upward market until they have touched the current level of $4 and $2. I recite these outstanding facts of recent history merely as a basis of some brief consideration of the causes contributing to this economic revolution which admittedly, precipitate and drastic, was not more severe than that experienced by certain other commodities.

An Uncontrollable Factor

That there is, however, an uncontrollable factor, an element of chance peculiar to petroleum, has been emphasized by this as by other crises in our history. We are without the stabilizer of reserves which is, in a measure, the safeguard against extreme fluctuations of prices in other branches of industry.

The petroleum industry possesses no second line of defense. It deals in a product of mercurial qualities, in that nature permits no mathematical appraisal of her hidden stores, and man has devised no practical method of economically utilizing on a large scale the surplus of today as provision against the shortage of the far tomorrow. Unlike our resources of steel and coal and timber, the petroleum reserves of the future are a vague and uncertain quantity. We are officially informed that our domestic underground deposits are even now 40 per cent. consumed, and while we may hopefully regard this as an ultra-conservative estimate, we cannot evade the concrete fact that for some years we have taken considerably more out of the petroleum cupboard than we as a nation have put in. Intermittenely our production has overtaken consumption by reason of the bringing in of new pools or by the slackening of demand. Then the diminution of production or the increase of consumption has reversed the tendency and has sent it in the direction of the other extreme.

Reserve Supplies for the Future

The extent to which progress has been made toward an ideal but unattainable position of a perfect balance between production and consumption is the provision that it has been possible to make for reserve supplies for the future. The pathway to the ideal position would seem to be to maintain production at a given level, irrespective of current requirements. The accumulation of a petroleum surplus which would be a real reserve when production results temporarily fell behind would necessitate:—First, a very considerable expansion of existing storage, and, secondly, such stabilization of prices as would encourage continuous production operations. Adequate reserve storage may be within the bounds of commercial development, but the intimate relationship which exists to a remarkable degree between the several departments of the petroleum industry and which causes variations in values, either in the markets for the raw material or the manufactured product, to be immediately registered in all departments, renders the question of price stabilization exceedingly difficult, if not incapable of solution.

As to our varying position in respect to storage, it is significant to recall that our largest reserve of recent years was attained as long ago as 1915. At the close of that year the country's field stocks amounted to 194,185,000 barrels, a total which the close of no subsequent year has been able to equal. Considered as reserves storage figures are, of course, of significance only when regarded in terms of daily requirements, and the stock at the end of 1915 was equivalent to a reserve of 244 days. The field stocks as of December 31, 1920, were less than 116,000,000 barrels, which, with the stocks at the refineries, made the total reserve sufficient for the needs of the country for 122 days. Against this there was on hand at the end of September last a total of 190,191,000 barrels, including the stocks of crude at the refineries. At the September rate of consumption that was a reserve supply for 137 days. But why not as a cushion against extraordinary demands accumulate a petroleum reserve for a year instead of for only 137 days.

Financial Aspects

Because primarily while coal and iron still unmined may be an individual heritage from one generation to another, title to petroleum wealth only obtains when it is brought to the surface, and individual drilling activities are seldom so isolated as not to be in danger of being forestalled by neighboring operations. Even if this were not an incentive to immediate action, the ordinary lease obligations usually compel early production, and human ingenuity has not as yet devised a method of meeting existing conditions and still keeping within the four corners of the Sherman law.

This brings one to a consideration of the financial and physical aspects of the problem of increasing storage facilities sufficient to continuously provide for excess production. The first of these is finding the capital. The 137 days' supply of crude on hand in this country at the end of September represented, in addition to cost of tankage, an investment of over half a billion dollars, and this commitment of the purchasers was further increased by the liability of the interest and other carrying charges. Applying this to a year's reserve of half a billion barrels, we are confronted with the necessity of a budget in excess of a billion and a quarter dollars for the crude alone, and an annual carrying charge covering interest, depreciation, evaporation and taxes of over $170,000,000. Crude withdrawn within a year from storage erected for flush production shows an average increase in cost over the purchase price of approximately 65 cents a barrel, and if this crude is carried for a longer period, say three years, the additional cost over the purchase price would be in the neighborhood of 40 cents per barrel per year. And, as you are aware, it is far from uncommon for storage erected for flush production to be filled at once, and this necessitates the material writing down of such tankage.

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Physical Problems

The physical problems of the storage of petroleum as compared with the maintenance of a reserve of other commodities are never as impressive as when they are applied practically. If we take as an example an exceptionally good twenty-acre lease in the West Columbia pool, which up to November 1 produced 8,025,000 barrels, we find that to conserve this oil on the surface of the

ground from which it was extracted would require a well 51⅔ feet high around the entire twenty acres. Or, if it was impounded in a single tank covering an area equal to the ground area of the Woolworth Building the height of the tank would be 1,033 feet, or 241 feet higher than the Woolworth tower—the highest building in the world.

When, as happened early this year, none of the purchasing companies was able to take the risk involved in financing the storage of large quantities of crude at the high price then prevailing, runs were reduced, and the price at the wells declined. In this instance the limitation was a financial one, for at that time storage for perhaps fifty million barrels was available. Under such conditions as then prevailed, quotations tend to fall below the cost of production, and the effect is two-fold, first, to remove the incentive to further drilling, and, second, to establish a price which justifies the industry in again assuming the risk of carrying the low-priced oil against future needs. Either one of these or the two in combination have in the past operated to establish the necessary balance.

Arbitrary Marking Down of Prices

In the recent past we have heard revived the accusation which is not an uncommon accompaniment of declining crude markets that purchasing companies were seizing advantage of an opportunity to arbitrarily mark prices in order to accumulate stocks at the low level. How utterly at variance is this time-worn charge with the patent facts is apparent from a recapitulation of the situation.

The purchasing companies entered this year with less than 116,000,000 barrels of crude in stock and every decline in the price proportionately reduced its value. For example, the stocks of mid-continent crude on hand December 31, 1920, were just under 76,000,000 barrels, and at the then existing market had a value of $3.50 per barrel. The stocks of mid-continent crude on hand September 30, 1921, were 100,000,000 barrels, or increase of 24,000,000 barrels. If it were true, as is far from the case, that all of the 24,000,000 barrels that went into storage was purchased at the bottom of the market, i. e., $1 per barrel, the average value per barrel of the 100,000,000 barrels of mid-continent crude in stock would be $2.90, so that the purchasing companies are actually today contemplating a record of expenditures of many millions of dollars during the first few months of this year in the accumulation of additional stocks of crude, while the value of their total stocks on hand at the present time are less than the value of the stocks on December 31 last.

You are all conversant with the curtailment of consumption of petroleum products abroad and the less marked reduction in the purchases at home. In the first nine months of this year—September being the last month for which government figures were available at the time of writing—we suffered a considerable contraction in the sales of kerosene and lubricating oil, and increases in the demand for gasoline and fuel oil, but the losses more than offset the gains. There was an increase in the aggregate exports and domestic consumption of gasoline in this period of 3½ per cent. over the corresponding first nine months of 1920, and an increase of 7.2 per cent. in the sales of gas and fuel oil. Against this we had a decrease of 12.4 per cent. in the sales of kerosene and a loss of 26.3 per cent. in lubricating oil. In these same nine months of 1921 there was an increase of 8 per cent. in the domestic production of crude over the corresponding nine months of 1920.

In January, when the first break in the market price of crude occurred, there was an increase in the crude and refining stocks on hand of 7,925,000 barrels. In February the gain was 14,914,000 barrels, or over 500,000 barrels a day; in March 9,102,000 barrels, in April 10,155,000 barrels, in May 12,112,000 barrels, in June 8,343,000 barrels and in July 2,153,000. In August the pendulum swung back and there was a decrease in stocks of 6,969,000 barrels. Consumption now exceeded production and prices advanced.

Such a violent price adjustment as we have experienced in our own and other industries is perhaps not the ideal medium of establishing the equilibrium between supply and demand, but in centuries of trading the world has not improved upon the principle that the measure of value is the price that can be obtained. Our changes have not been too abrupt and too extreme to be healthful, especially those through which we have just passed, but no one will deny that we had lived too long in the rarefied atmosphere of inflated values and that the health of American business demanded that it return to a more normal attitude. High prices gave commerce the glamor of fictitious prosperity. Everyone was getting more, but paying more, and veteran producers have assured me that while $3.50 oil looked attractive, inefficient labor and high priced material took the bloom off the rose and that the decline in the price has produced corresponding compensation in decreased costs.

Efforts Toward Stabilization

It will not be amiss, however, for us to ask ourselves whether, after full allowance has been made for the uncontrollable basic factors of the petroleum industry, we have done all that we could for its stabilization. The public feels sometimes that it pays too much for too little, and would be better satisfied, as we would be, too, with 25-cent gasoline the year round instead of a price of 20 cents at one season and 30 cents at another. We realize also that $1 mid-continent crude was below cost and therefore uneconomic. Insofar as the difficulties in the way of stabilization are not inherent and ineradicable, any suggestions for their amelioration are worth consideration and will be welcomed. In that spirit it may be asked whether the industry should not aim at an established policy and the accumulation of financial resources to provide a market and storage for the surplus in seasons of overproduction or slackened consumption.

The United States has been doing a little better than its share towards the maintenance of the world's petroleum supplies. While the world's production has more than doubled in twelve years, we have increased our annual proportion from 64 per cent. in 1916 to 68 per cent. in 1919, but this has only emphasized our need of a war chest which will always be available in periods of depression to withdraw from the markets that portion of the world's output which industry is not able to absorb and to conserve it against the certain time when famine follows plenty.

That over a long period the world will be eager to consume all of the petroleum that the world can produce there can be little doubt. The repair of Europe's disorganized fiscal systems now but painfully begun will by degrees restore these countries to their former status as customers. They will readily absorb after their recovery any surplus of kerosene which may exist by reason of the present tendency of electrical service to supplant the use of this commodity, and in spite of the success of the new methods of refining which increase the yield of the product most wanted—gasoline—and decrease that of the product less desired—refined oil.

A revival in shipping should in time stimulate the present tendency towards the conversion of marine boilers from coal to fuel oil; the nine million motor cars now dependent upon the industry for power and lubrication will multiply in the future as they have in the past; the world will find ever new uses for petroleum products and with intermittent lapses, for which we must be prepared, the consuming markets will press close on the heels of the producer and by adequate rewards spur him to greater and greater efforts.

The timely subject of co-operation was treated by the next speaker, Edwin B. Parker, general counsel, the Texas Co. His main points were as follows:—

CO-OPERATIVE COMPETITION VS. COMBINATION

By Edwin B. Parker

The ever increasing complexity in the machinery of modern civilization renders co-operative effort a corollary to the attainment of the maximum of efficiency at the minimum of cost, and such co-operation between competitors along legitimate lines is not only entirely legal, but highly laudable and in the public interest. Through governmental and industrial co-operation duplication of effort and expense will be eliminated, economic waste will be discovered and prevented, new uses will be found for products and the consumer will be educated to such new uses.

War conditions rendered it not only desirable, but necessary for competitors to combine, with all that term applies, but such conditions no longer exist. I am convinced that so far as the petroleum industry is concerned the very real advantages flowing from the legalized combination under government control would be more than offset by the obvious disadvantages of such a program.

Government in Business

Of one thing, however, we may be certain. If government interference in the form of restrictive legislation to prevent monopolies and restraints of trade and to keep competition free is not effective, then government regulation and control of industry will follow. Let not the industry fool itself as to that. All knowledge of this fact should impel industry to observe the law as it is written, both in letter and in spirit.

It is interesting to note the somewhat curious fact that the government in seeking more effectually to strike down monopolies used as a weapon the enforced restriction of the free power of merciless competition. The law has curbed competition in order to make it free. We are now coming to see that the ultimate solution lies not alone in keeping competition free, but also in adding to and developing the enlightenment of self-interest.

Legal Functions of Trade Bodies

Neither the common law nor the statutes, State or federal, either in letter or spirit, seek to prevent any individual, firm or corporation from acquiring all available knowledge of facts in order to act intelligently in the conduct of their business. No principle of law and no final decision condemns the formation and maintenance of an association of independent business competitors, each of whom remains free in the conduct of his business, having for its purpose the assembling, classifying and disseminating of information of common interest.

That the tendency of such activities is to promote rather than restrain trade is, as we have seen, recognized by our federal government, in suggesting the formation of trade associations and inviting their co-operation with the government in the compilation and dissemination of information of this character.

No one can question the legality of the American Petroleum Institute or the beneficial results flowing to its members from its collection and dissemination of facts, its service in the joint handling of traffic and railroad problems, its service in keeping members advised with respect to legislation, its assistance in dealing with tax matters, its service in technical research matters, attempts to strengthen the industry in foreign fields and other services.

Before my immediate associates and I became members of the institute it was my duty personally to investigate the legality of its organization and its activities. I felt warranted in advising, and did advise, that the plan of organization is unimpeachably valid and legal at common law and under the Sherman act, the Clayton act and the anti-trust statutes of the several States to which its activities extend. From these investigations and a resulting somewhat intimate knowledge not only of the plan but of the practical workings of the Institute I am convinced that its members and its officers have definitely and irrevocably made up their minds that they can and will live and prosper within the law; that whether they approve or disapprove of an existing law, they recognize its binding force upon them and their obligation scrupulously to respect it; that their salvation and the preservation of property rights lie in assisting all governmental agencies in instilling in the mind of every citizen a wholesome respect for the law as it is written, so long as it remains unrepealed; that as good citizens and good sportsment they will in the conduct of their business play the game fairly; that they are strong enough and resourceful enough to in a perfectly proper and legitimate way co-operate with respect to those matters of common concern where the law does not prohibit co-operation, and at the same time resist all temptation tending toward unlawful combination.

The American Pteroleum Institute has a great opportunity to demonstrate to the world the value of co-operation by the competing units in any industry in a manner to promote and stimulate full, fair and free competition in the interest not only of an enlightened industry but also of an enlightened general public. You cannot, must not and will not permit this opportunity to pass.

Adjournment followed the conclusion of Mr. Parker's address.

SECOND GENERAL SESSION

Tuesday Evening, December 6

The general session on the first evening opened with a paper by D. W. Moffitt, vice-president, Cosden & Co., on "The Mid-Continent Refiner." Mr. Moffitt's conception of his subject was expressed saliently as follows:—

THE MID-CONTINENT REFINER

By D. W. Moffitt

Is the independent refiner an essential part of this great petroleum industry? Should he be eliminated? Many of you would point out many reasons why he should be. Some of you could give many reasons why he should not be. Personally, I think of one reason that perhaps is a good reason and on which we could all agree that the independent refiner is an essential part of the petroleum industry. He is here to stay; he is not going to be eliminated.

That experience, growing out of the history of the years, has so ingrained in human hearts and human intelligence an objection and a criticism against the reposing of this power in the hands of a few that, even if that power were so reposed and were honestly and fairly and justly and properly directed and used, there would still grow up in time such a resentment against it that persecution and prosecution and destruction of those who exercised that power would inevitably follow.

So the independent refiner in that field of human activity is here. The thing to do is to make smooth the path as smooth as we can, straighten that path as much as we can, release the points of friction and difficulty as much as we can. But it is one of the evils, if you want to call it an evil, with which, until human nature changes, I believe we must bear.

The export situation was treated by Edward Prizer, president, Vacuum Oil Co., who spoke in part as follows:—

EUROPEAN CONDITIONS AND OUTLOOK

By Edward Prizer

The period of prostration through which the petroleum industry, as well as other lines, has been passing is due to the foreign situation. Europe is suffering from unsound economics, bad finance and sordid politics. I have just returned from an extended trip there.

We may erect barriers to keep out the physical diseases of foreign countries, but no wall can shut out the commercial, financial and industrial ills of other lands.

Our weakness is that our home development has been so great that we have failed to acquire an international vision, and it was because of this that we were finally drawn into the world war.

Our Entangling Alliance of Commerce and Finance

We hear much today about entangling alliances. The phrase has become a fetish, wholly divested of the original meaning. It is used either as sheer political buncombe or to befog sound economic and political thinking. We are in an entangling alliance with the whole world which never can be disentangled. It is the entangling alliance of commerce and finance. The web of this entangling alliance is woven throughout our entire body politic, and it will require the ablest statesmanship and soundest financiering to prevent it from strangling us.

In these dangerous times, when the highest constructive statesmanship is imperative, it is pitiful to see our lawmakers at Washington wasting precious hours in petty and sordid politics. Never has our country so sorely needed as now political leaders of both international and economic vision. The conception at Washington seems to be based on the impossible postulates that foreign commerce consists of selling only without equivalent buying and that draining capital and ham-stringing industry by destructive taxes are proper methods of inducing a business revival. The vindictive attitude of Congress toward wealth is both unreasoning and unintelligent.

Europe has broken down. The balance not only of financial but of moral power has been shifted from the old world to the new. This involves upon us not only large opportunities, but great responsibilities. I have a deep conviction that to a greater extent than any of us realize the future of the world rests upon us.

Map of Central Europe a Monstrosity

The new map of Central Europe is a projection of geographical monstrosities. The Peace Commission, in its endeavors to divide up Central Europe along ethnological lines, has seemed to pay little attention to natural frontiers or age-long economic currents. Because of the centuries of race migration and race development, any attempt at clear-cut ethnological divisions of peoples is an impossibility.

No Political Stability Until Russia Recreates Herself

Over all Central Europe hangs the somber shadow of Russia. It is not now primarily the fear of Bolshevism, for it has become evident that this evil disease carries its own poison which will cause its eventual death. No social system which throttles personal initiative or denies the rewards of individual effort can ultimately survive. It is a wholly different fear. . . . Some day Russia will recreate itself, and when it does there is every reason to believe that there will arise in Russia a greater sense of race consciousness than now troubles the new nations of Central Europe. When Russia sooner or later fully awakes and grasps the significance of her giant strength, what will be her attitude toward the carving up of her empire when she was prone and helpless? . . . It is evident that there can be no political stability in Central Europe until Russia recreates herself and the direction that her great strength will be exercised is definitely ascertained.

Commerce Practically Dislocated

Commerce in Central Europe as existing before the war is now practically dislocated. Tremendous efforts are being made to compel it to flow into new channels because of new national boundaries, but many of these efforts are as hopeless as trying to make water flow uphill. To fulfill the aspirations of nationalization new railway systems will have to be constructed, while old systems are in a very bad state of repair. The exchange of commodities is hindered by innumerable obstacles encountered when crossing frontiers. As a result there is a plentitude of certain products in one locality and a deplorable lack in another a short distance removed. The free passage of travelers is strangled by almost incredible difficulties.

France is obsessed by an overwhelming fear, and is still further enormously reducing her recuperative capability by maintaining an army of nearly a million men. The Entente is dead save only in name. England, having secured all she can expect, longs only for a stabilized Europe in order that her industries may revive and her great army of unemployed may be put to work. She is passing through one of the most severe industrial depressions, but is seeking export trade with the dogged determination characteristic of the English nation, having a true conception of its vital relation to domestic prosperity. Her government is granting her exporters credits on foreign sales which are little short of actual subsidies and in various ways relieving her exporters of taxation on foreign trade. Her interests do not lie in a prostrate Germany.

Tax Handicaps of United States Concerns Operating Abroad

In contradistinction with England's policy, Congress cut out of our new tax law those provisions which gave relief to American capital engaged in export operations. This capital is enormously taxed in foreign countries, and

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when the residue of earnings comes back to this country it is again subject to the maximum tax at home. As a consequence, the net returns on American capital in apparently successful foreign operations frequently does not equal what might have been earned on money, without risk, from ordinary bank interest.

Will Be Reawakening of Common People

There is no question but that Europe is suffering from unsound economics, bad finance and sordid politics. It is inconceivable to believe that these conditions can be suffered to continue permanently. I do not believe that the whole population of Europe permanently has gone mad. I believe in the end there will be a reawakening among the common people, and they will in time call their political leaders to account and will insist that peace and amity and the orderly regulation of human affairs are the proper and necessary methods of civilization and must exist and persist.

I saw as hopeful signs the harvesting of crops in Central European countries sufficient for their own needs, with something to spare for export, and what he ascribed as a rift in the dark clouds overhanging Russia. In spite of the crushing load of debt, Europe possesses potential assets which if realized upon will prevent bankruptcy. I believe England, France and the United States cannot permit Germany and certain of the Central European countries to go into insolvency that will bring financial chaos everywhere. A great source of present European expense is the burden of militarism, and this will surely now be largely lifted with the Disarmament Conference turning the searchlight as never before upon the waste which militarism causes.

Future of Oil Industry as Sure as Human Progress

As to the petroleum industry, while I can see no reason to expect an early and material increase in European consumption, the essential part that oil is playing in human activities would necessarily indicate that Europe must have reasonable supplies of petroleum to exist, and hence that the purchase of other commodities will be restricted in order that petroleum may be obtained. It would not need a great stimulation of overseas industry to drain this country of its present accumulated petroleum reserves, and it is this conviction that is instigating a worldwide search for petroleum deposits. I believe the position of the United States Government that American investors shall not be shut out from an equal opportunity with the citizens of other countries in the petroleum resources of the world will be maintained.

The history of the petroleum industry clearly shows that consumption increases at a far more rapid ratio than the increase of industry as a whole. A moderate increase in human activities results in a much larger relative increase in the requirement for petroleum. The future of the industry, therefore, is as certain as human progress. There may be no immediate and pronounced increase of consumption, but as the world settles down to its regular methods of life after its wild war debauch, the call for petroleum and its derivatives will steadily increase. I believe it is great wisdom for the industry as a whole to look substantially into and plan for the future, for the time surely will come sooner or later when our production will be taxed again to its utmost and the backed-up supplies in Galicia, Roumania and Russia will be required to supplement the world's increased need, and that the production of Persia and elsewhere in Asia, though double that at present as expected, as well as new developments elsewhere, will constitute no menace to the producer and refiner in the United States.

Edward L. Doheny, naturally, had the Mexican situation as his subject. His treatment of that interesting topic was comprehensive, the following being the high lights therein:—

MEXICO: THE FUTURE OF ITS BUSINESS

By Edward L. Doheny

Up to the present the oil exudes found in numerous places along the Mexican coast have been the only guide for the development of oil. Such a guide has been successful, and it will continue to be so until the last of the petroliferous areas showing oil exudes is developed and exhausted. In this line of thought we must distinguish between the exude which denotes the existence of underground oil pools and those indications, such as impregnated surface rocks to be seen along the foothills of the Sierra Madre mountains, which indicate merely the dissipation of the oil theretofore existing.

Quoting the best posted and most reliable of the Mexican geologists: "If the oil pools of the Mexican coastal plain exist only where oil seepages exist, then the life of oil production in Mexico is comparatively short, and could be estimated at from one to possibly two more decades, with a continuously declining production beginning within the next few years."

It is a fact that the existence of an oil exude in this region invariably means the close proximity of a volcanic plug or dike, whether visible or hidden underground. Practically all of these exudes are located near such basaltic plugs or dikes, and a great many of them are found at the contact between the volcanic and sedimentary rocks, as in the case of Cerro de la Pez, Moralillo, El Chapapote, Cerro Azul, Los Borrachos, Gil de Solis and Chapapotal. In these cases the sedimentary rocks are always of shale, sometimes, however, overlaid by maris and sandstones. The necessity for the co-existence of these basaltic cores and oil exudes

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E. L. Doheny

along this coastal plain is resultant from the following facts:—

First—Very thick bedding of pervious shales which covers and hermetically seals the underground oil pools, thus preventing their waste, and

Second—The absence of important faults in the shales.

Geological Features

The oil which makes its way to the surface generally follows the contact between the basaltic rocks and the sedimentaries, along which contact it finds a place of least resistance. Occasionally these exudes follow up through crevices produced by old volcanic explosions above a mass of underground basalt which has not reached the surface. In any case, the oil coming up to the surface of the ground does so against great resistance. The development in many places, notably at Ebano, demonstrates that the volcanic phenomena which resulted in these basaltic dikes and plugs has contributed in no uncertain measure to the existence of the areas of dislocation and cavities which afterwards became filled with oil through a very slow process of accumulation. The larger these basaltic dikes and plugs and the more frequently they are encountered, the larger will be the number and the size of the oil pools in their proximity.

There are two questions of vital interest in this connection:—

First—Do the oil seepages sparsely scattered over an immense area indicate with certainty the existence of pools of oil in the vicinity beneath? The experiences of the last twenty years give the answer to this question decidedly in the affirmative.

Second—Are there substantial pools of oil in places far away from the vicinity of these exudes and also far away from any form of volcanic action or volcanic rock masses? To this we venture the reply, "Yes."

Having answered both these questions in the affirmative, a further question might be asked with relation to each of them:—

Discovery of Pools

How to look for and discover the much-desired oil pools?

First—Where oil exudes indicate the existence of oil pools beneath, a careful study should be made of their nature and occurrences so as to determine, if possible, whether the oil exudes are part of a series of exudes which indicate a line of fracture or dislocation in any particular direction. Often careful search will reveal that the exudes continue along a definite line, and that drillings made at right angles with the extension of this line will determine where the pool is located and its width, after which drillings along the line of exudes will reveal the extent of the pool or pools. Sometimes a study of the stratigraphy of the rocks which appear on the surface in the vicinity will indicate the position with relation to the exudes that the uplifted, anticlinal or domal structure bears.

It is well known that in Mexico, as in California and other places, the topography of the surface is not a safe guide as to the faulting of the rocks beneath. The bed of an arroyo or a valley is often located along the axis of an anticlinal, the rocks dipping both ways, and the valley becoming the natural site for wells to be located to penetrate the top of the fold and get the gas pressure and oil production, if any there be underneath. It must be borne in mind in making these investigations that great care and good judgment must necessarily be supplemented by good luck in order that results may be frequently obtained. In our drilling experience at Ebano we endeavored to follow the reasoning which I have attempted to set forth, and we have found that there are oil bodies existing under at least three different conditions in this section. These may be described as being those oil pools found at the place of contact between the sedimentary and the volcanic rocks, penetrated by wells drilled close to the base of the volcanic hills which reach to the underground reservoirs somewhere along the area of contact.

In many cases we have drilled on these lines of fracture, locating the derrick directly on the line, and having drilled to a depth beyond which we did not expect results, we have moved the derrick in one case only eight feet, in another twenty-two feet, and developed a pool of oil with the second hole, thus justifying the second drilling. Sometimes it was necessary to drill the third hole not very far distant, but on the opposite side of the fracture from the second—the first being located on the line of fracture.

Small Seepage May Indicate Pool

Thus have we demonstrated that a very small seepage may be the location of a substantial pool which is not directly under the seepage, but is to one side of it, and this can only be determined by drilling a second well, which, if unsuccessful, must be followed by a third in order to discover whether there is or is not a pool in the vicinity of the exude. This very close fine-tooth combing of the possible oil regions of Mexico has only been done so far to a very slight extent.

It must be kept in mind that the sedimentary formations which appear at the surface and which the wells penetrate to a depth of 2,000 feet, more or less, were distributed by the waves of some primitive ocean over a surface of rocks already faulted, broken and uptilted, and that after the deposit of these sedimentaries, they were themselves penetrated and faulted and disturbed by the volcanic plugs which were forced up through the faultings of the underlying limestones, and up and to the surface through the hundreds of feet of sedimentary rocks deposited on the limestones. The evidence of these subsequent actions to the uptilting and folding of the Tamosopo limestones is everywhere discernible throughout this region, and as the sedimentary rocks were and are impermeable, the basaltic masses forced up through the sedimentaries created a passage for the oil to accumulate on the surface along the contact and through the dislocations made by the basaltic plugs.

Our properties in the Ebano district yielded a total of 30,000,000 barrels for the last ten years; the Casiano properties yielded over 80,000,000 barrels, and during the last five years our company has taken 70,000 barrels of oil from our Cerro Azul property and at the present time is shipping over 200,000 barrels per day from that basin.

Mr. Doheny's address concluded the program of the first evening's session.

SECOND TECHNICAL SESSION

Wednesday, Forenoon, December 7

Discussion of the motor fuel problem was continued at the second technical session, Wednesday forenoon. Capt. J. F. Lucey, president, Lucey Manufacturing Corporation, presided.

A paper by F. C. Mock, research engineer, Stromberg Motor Devices Co., was first on the program. The essential features thereof follow:—

LIMITATIONS IMPOSED ON ECONOMY BY VOLATILITY CHANGES IN MOTOR FUEL

By F. C. Mock

The first stationary internal combustion motors used a fixed hydro-carbon gas as fuel. When efforts were made to adapt such engines to automotive purposes the early experimenters naturally turned to the use of a liquid fuel which could easily be converted into a vapor. This they found ready to hand in "gasoline," a light naphtha boiling at about 120 deg. F. to 300 deg. F., which was at that time more or less of a by-product.

Between 1903 and 1910 in this country the demand for motor vehicle fuel began to exceed the available supply of this volatile by-product, and the very natural solution developed of blending in the required amounts of slightly heavier naphthas. But with this apparently insignificant change of gravity there came a very definite change in the action of this fuel in our motors.

I can perhaps make this most clear to you gentlemen of the oil industry by stating that the carburetor and intake system of the present automotive motor is nothing more nor less than a still, of which the vapor output, instead of being divided and condensed, as in your refineries, is taken into the engine and burned. There is a draft of air through the system at all times during its operation, and the naphtha, instead of being put in in large occasional charges, is fed in continuously by the carburetor; we cannot meter the vapor, so we endeavor to control the fuel supply to the motor by the rate we feed liquid into the still. This last preceding sentence is really a complete expression of our fuel feed difficulties today—we meter our fuel in the carburetor at the entrance to the still, but the action of our motors is governed by the still output, which we cannot fully control.

If you will keep in mind that our fuel feed is on this principle and that every time the still delivers an amount of fuel inadequate for combustion with the air going through, the automobile engine will misfire, you will understand why fuel volatility has been of such importance to us. With the highly volatile fuels first used, the intake system stills, operating only slightly above atmospheric temperature, were able to convert immediately into vapor the gasoline as fast as it was metered from the carburetor. But with the advent of the heavier fuel, this condition changed, in that the heat supplied to the still was not sufficient to immediately and completely vaporize the fuel as fast as this was fed to it. Now, it is one of the peculiarities of our motors that while they do not emphatically resent an excess of unvaporized fule, they will go on strike and refuse to ignite their charge the moment its vapor content falls beneath a certain definite percentage.

Remedy for Handling the Heavier Naphtha Parts

It will perhaps seem to you that the first logical step in this difficulty would have been to raise the temperature of the still system and thereby increase its evaporative capacity. But you must remember that most owners of motor cars had neither knowledge nor means of accomplishing this; furthermore, the cooling system and compressed ratio of many of our engines are so near the limit that unskilled attempts at raising the mixture temperature were very apt to end disastrously, either by causing the motor to overheat or by causing "detonation" and knocking.

The car users, however, found that there was another remedy easily applied, although they did not for a long time understand how it worked. If the still would not handle the heavier naphtha parts they could, nevertheless, get the desired amount of vapor by increasing the fuel feed to the still at the entrance end; in such case the light elements would go through, evaporate and furnish enough vapor for combustion.

Unjustified Variations in Motor Fuel

In addition, we occasionally find entirely unjustified variations in motor fuel, whose detrimental effect should be obvious to anyone. For instance, "casinghead" gasoline, with boiling point below 140 deg. F., will in summer fill our fuel lines with bubbles and vapor locks, causing a tremendous amount of trouble and annoyance. Also there are fuels occasionally sold, as "gasoline," which approximate kerosene; these cause us a period of disturbance lasting until the automobile users of that community find out where their trouble is coming from. I remember one series of complaints of hard starting, where we found that at 5 deg. above zero the fuel had practically no vapor. When poured out on a stone sidewalk you could not light it with a match.

As may be assumed from the foregoing, it is the writer's belief that it would be undesirable and impractical to attempt to hold all the motor fuel sold in this country to one standard of volatility. There will always be motors in use which will demand more volatile fuel than the average. Similarly, limitation on the high boiling point side will tend to prevent normal development of means for using heavier fuels.

I do believe, however, that it is highly desirable that there should be a recognized standard and that fuel which does not conform to this standard should have the nature of such variation clearly specified. Such a step will give the best economic co-ordination of supply and demand, and will at the same time tend to clear up some of the confusion which now exists in the oil refining industry, the automobile industry and among the automobile-using public.

O. C. Berry, chief engineer, Wheeler-Schebler Carburetor Co., was the next speaker. His address was essentially as follows:—

PRACTICAL EFFECTS OF TOO LOW VOLATILITY

By O. C. Berry

The title of this paper must not be interpreted as indicating that the automotive industry is casting reflections on the oil producers of the country. We are having trouble with our fuel but do not feel that we are being imposed upon by those who could do better if they only would. We feel, rather, that the proper utilization of our petroleum resources is a problem confronting the automotive engineers and the petroleum refiners alike, that each body of men has done its share in the past and can be counted on to do even more in the future. The lowered volatility of our present fuel is not the remarkable thing, but rather the fact that it is as volatile as we find it.

We are, however, confronted by a very difficult problem in trying to use our present fuel economically. We have not been entirely successful, and therefore come befroe you with a recital of our troubles in the full confidence that your efforts in helping us out will be made more effective through a better understanding of our difficulties.

Rich Mixtures Are Wasteful

It is perfectly clear to the automotive engineer why so nearly all drivers use too rich a mixture. The mixture required for highest power covers rather a wide range and will contain from 15 to about 40 per cent. more fuel than is required for maximum economy. Mixtures considerably richer than this may still run smoothly and be free from actual missing or loading. Thus it may be seen that the mixture for maximum economy lies at the very leanest edge of the explodable range, and even the slightest reduction in the fuel ratio below this point is apt to cause the engine to stall, while mixtures very much richer than this seem to the driver to be giving perfect results.

The inexpert driver must have intrusted to him a means of making the mixture at least two or three times its proper richness.

Other Ill-Effects of Low Volatility

The other results of the low volatility of the fuel are as serious as the waste of fuel. In cold weather the cars are hard to start and operate imperfectly during a rather long period of warming up. The flooding of the cylinders in starting and the liquid fuel entering the cylinders during operation at normal running temperatures both result in carboned cylinders, sooted spark plugs, pitted valves, diluted lubricating oil in the crank case, inferior lubrication, increased wear and increased car maintenance.

In spite of past failures the automotive engineer has not given up hope or ceased his efforts. I feel confident that in the not distant future we will find ourselves able to produce cars that will give good results in the hands of the general public when using fuels that are much heavier than the ones now causing us so much trouble.

Conclusions

In conclusion allow me to repeat that while we can use our present fuel very satisfactorily in some of our laboratories, the general public is having real and serious trouble with it. We are not able to use it as efficiently as we should in the cars that are now available. There are more than eight million of these cars in the country, and they should still have several years of usefulness before them. Their usefulness will be greatly reduced by any considerable increase in the "end point" of our fuel. We, therefore, wish to urge that the oil refiners continue their efforts to improve the volatility of their gasolines.

In the meantime the automotive engineers will be doing their utmost to produce cars that can give proper results in the hands of the average driver with fuel as heavy or heavier than our present grades. Our fuel problem is one that will require our united efforts. Getting the proper solution is equally important to the oil producer and to the automotive industry. We should, therefore, work together, each making an effort to understand the difficulties the other is encountering and the progress he is making. Finally, we wish to urge that the refiners keep in close touch with the progress made by the automotive engineers, to the end that no further reduction be made in the volatility of our fuel until the industry is prepared to take care of it.

A general discussion of the two preceding papers followed. Then came a general discussion of "The Value of Research to the Petroleum Industry in General," participated in by David Beecroft, president, Society of Automotive Engineers; T. G. Delbridge, chief chemist, Atlantic Refining Co.; A. W. Ambrose, petroleum technologist, U. S. Bureau of Mines; K. G. Mackenzie, chief chemist, the Texas Co.; W. G. Platt, president, National Petroleum News; J. R. Stockton, vice-president, Producers & Refiners' Corporation, and others.

Adjournment of the session followed.

THIRD GENERAL SESSION

Wednesday Afternoon, December 7

First on the program of the Wednesday afternoon general session was a paper by Frank Haskell, president, Tidal Oil Co., which had to do with recent and future production. The essential features of this interesting paper follow:—

OIL PRODUCTION DURING THE PAST YEAR AND A GLIMPSE AT THE FUTURE

By Frank Haskell

Crude oil will cost more in the future than it has in the past. It is extremely improbable that the amount needed in the next ten years can be supplied at any such average prices as have prevailed during the last ten years, but that the oil will be forthcoming, if a price high enough to afford a fair margin of profit is paid, is not to be doubted.

Higher labor and material costs will contribute to bringing about higher prices for the crude oil, but the principal causes of increased prices will be the necessity of drilling to deeper producing strata in fields now under development, and the greatly increased cost of transportation of material into, and oil out of regions more remote, which are now being opened, and which will in the future furnish a large and ever increasing percentage of the world's need of petroleum.

In the mid-continent field, in which about 75 per cent. of the high-grade oil of the United States is produced, oil in commercial and paying quantities was first discovered in the shallow formations of this territory from 18 to 25 years ago. These shallow areas have been quite fully defined and developed, and the production from them has declined to a very small average per well. Of the 55,000 productive oil wells in Oklahoma, nearly 22,000 are in the old shallow sand district.

It is, of course, impossible to estimate accurately the cost of drilling the next 22,000 wells which will be drilled in Oklahoma, but it is not improbable that they will cost at least ten times as much as the old 22,000 shallow wells.

No extended discussion is necessary to convince the individuals or companies which are paying the bills in the mid-continent field today that oil cannot be produced in the future for the average prices which have prevailed in the past.

Fluctuations in Prices

The managers of many large producing companies, with millions or scores of millions invested in their business, have recently seen the price of their product cut in less than six months' time to from 20 to 30 per cent. of the prices prevailing when much of their capital was put into the business.

Lest it be thought that this great decrease in price was brought about by the worldwide stagnation of industry which has prevailed during the past year, it should be pointed out that there has been no decrease, but an actual increase in the consumption of crude oil and its products during the time in question.

The violent fluctuations in the price of his product has always been one of the most discouraging features with which the producer has had to contend. This has been true particu-

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Frank Haskell

(*Continued on page 23*)

PRICE CHANGES WERE FEW LAST WEEK AND EASTERN MARKETS STAYED DULL

Many Refiners Are Finding Difficulty in Moving All Their Products — Price Shading General—Crude Prices Hold

It was a dull week in the petroleum market. The oil business just now is marking time and endeavoring to readjust itself to the changed conditions resultant upon the advances which have been made in crude prices. It is a rather difficult task. At the outset refiners attempted to mark up the prices of all their products proportionately with the advances in crude. That was, of course, the logical thing to do. It has been found difficult to sustain these prices, however, and there have been reductions in refinery prices in all parts of the country. It has not been possible to cut enough to attract buyers, however, as, of course, the prices of refined products must be based primarilly upon crude prices.

Last week there was not much disposition to make open announcement of price changes, but in all lines of refined products there was a great deal of talk of price shading. Efforts being made to claim that the advance in the price of crude was forced by the law of supply and demand do not seem to impress marketers who have been looking for an improved call for a long time.

Tank wagon prices have been marked up enough to cover the advance in crude, and the softer market at the refineries will hardly affect them. There is no talk of cheaper gasoline or kerosene to the small consumers at this time, and during the past week no new advances were reported in tank wagon or service station prices. The general opinion seems to be that there will be little change in the situation during the present month, but there is a good deal of difference of opinion as to what will be the market developments after the beginning of the new year. It is widely opined that there will be a good demand for gasoline, no matter what the price is; but the industry does not like the idea of a possibility of having to lean as heavily on this one product as it has had to during most of the present year.

Export demand is not what it should be at the present time, and there are grave fears that foreign consumption of American petroleum products will be much below normal next year, unless there is a decided improvement in industrial conditions abroad. There are some, however, who are inclined to take a more optimistic view of the situation, and believe that present prices will hold and that there will be demand enough to sustain them. It would seem that domestic producers are hopeful that something will happen to check the rush of Mexican oil to this country.

CRUDE PRICES

Crude prices remained practically unchanged last week, the only cut announced being one of 20 cents a barrel in the Blue Ridge field, one of the smallest of the Gulf Coast producing areas. There seems to be no expectation of any general readjustment of crude prices before next year anyway; and producers are naturally hopeful that there will be demand enough to sustain the prices which have been named. It is certain that if present prices hold until spring there will be a vast amount of new development work undertaken in this country, in spite of all the arguments which were being advanced but a short time ago as to why it was necessary to curtail production.

If there should be such an increase in domestic production as seems possible if the new Mexia field and some other new developments live up to promises, it would seem that there might be more reason for claims of an over-supply of oil during 1922 than was justified at any time this year. Some producers, however, contend that the propaganda for a let-up in drilling operations, which was pushed so actively when crude prices were being reduced, was not based entirely upon the merits of the situation, but was intended to serve as an excuse for marking crude prices down.

GASOLINE AND KEROSENE

The call for gasoline last week was not active. This is the dull season, and it is not to be expected that there should be a mid-summer demand. At the same time, producers would like to see a better interest than they are able to discover. There is a promise that there will have to be a curtailment of production in some sections unless the demand improves. The refiner who finds his products accumulating in his hands cannot be expected to be very firm when it comes to fixing prices, and the undertone of the gasoline market as far as refinery prices is concerned is anything but steady.

Some large producers who are closely affiliated with large marketing companies have made contracts for next year which enable them to know where they stand, but other producers are not so fortunately situated. There is no doubt that foreign as well as domestic consumers consider existing prices high.

There were no cnanges in export prices announced during the period, and little change in the export situation.

Refinery quotations are of no great value at the present time, as quotations are not being strictly adhered to. Last week reductions were made in Pennsylvania prices to meet cuts already made in the West.

Quotations were :—North Texas, 48@50c.; 460 end point, 12@12½c.; 50@52, 450 end point, 12@12½c.; 56@58, 450 end point, 13@13½c.; 58@69, 437 end point, 14@14½c.; 60@62, 420 end point, 14½@15c.; 64@66, 360@375 end point, 16@17c. Oklahoma, 50@52, 450 end point, 12@12½c.; 56@58, 450 end point, 12@13c.; 58@60, 437 end point, 14@14½c.; 60@62, 400 end point, 15@15½c.; 64@66, 385 end point, 15½@16c.; 76@84, absorption gasoline, 16@17c.; 64@66, blend, 450 end point, 15@16c.; 60@62, blend, 15@16c. Pennsylvania, 52 gravity naphtha, 15c.; 54 gravity naphtha, 15¾c.; 56 gravity naphtha, 17½c.; 58 gravity naphtha, 18c.; 62 gravity straight run gasoline, 18¾c.; 64 gravity straight run gasoline, 22c.; 68 gravity straight run gasoline, 25c. There was very little doing in the blends.

The demand for kerosene from domestic consumers is fair, and that is as much as can be said. Export interest is slack, and the total export figures for this year will not make a good showing. The advances in tank wagon prices seem over for the time being, as there is no excuse for pushing them higher as long as the refinery market is no stronger than it is at this time. Pennsylvania refiners have made quite as large cuts in kerosene as in gasoline, and in the West the market is very much in favor of buyers.

Refinery quotations were: — North Texas, 40@42, prime white distillate, 4¾@5¼c.; 40@43, prime white kerosene, 6@6½c.; 42@43, water white kerosene, 5½@6c. Oklahoma, 41@43, 4¾@5¼c.; 42@43, 5@5½c.; 44@46, 6@6½c.; 42@43, distillate, 6@6½c. Pennsylvania, 45, prime white, 7¼@7½c.; 45, water white, 7½c.; 46, water white, 8c.; 47, water white, 10¼c.; 48, water white, 11½@12c.; 300, mineral seal, 10@10½c.

FUEL AND GAS OIL

The period was a quiet one in the fuel and gas oil markets. As far as gas oil is concerned large consumers have taken care of their requirements for some time to come. When the first advances in crude occurred, some consumers of gas oil, who had neglected to take advantage of a market that had been all in the buyers' favor for a long time, rushed in to buy, but recently there has been a quiet market and the ideas of producers and consumers as to value do not seem to coincide. The sales of this oil are usually contract arrangements in which the market quotation figures only nominally, and there is no doubt that quoted prices could be shaded materially for the right kind of business.

Fuel oil was quite as dull as the rest of the market last week, and reports from different selling centers indicated that there was no difficulty in buying under the market. Refiners are not sticking to the prices they quote, and there is not enough demand to give the market any backbone. The demand for bunker oil is not what it should be at this time, and most of the large consumers have made arrangements for their supplies for some time to come. The price is not low enough now to give much encouragement to those who were considering changing from coal to oil as fuel. There is so much Mexican oil already in this country that if imports keep up as they have been running the question of finding an outlet for all the fuel oil that can be produced is going to be a serious one. Importations of Mexican oil for the week ended last Thursday were, however, far below recent averages.

OTHER REFINED PRODUCTS

Lubricants move as slowly as ever, as the takings by the big domestic industries is disappointedly small at the present time. There was not much export business booked during the period. Lubricants have been a weak spot in the market for some time, and there is a belief that there will be improvement after the first of the year. This is another market in which there is a manifest disposition to shade prices for business of the right sort, but it does not seem that the amount of shading that is offered is enough to attract much business.

The demand for waxes was mostly for small lots, and the prices asked were not as high as they were. Match wax continued to be in more demand than any of the other grades. Petrolatums were slow, and little business was reported during the period.

TANK WAGON PRICES

The evening up of tank wagon quotations seems to have been finished. Since the marking up started there have been advances in tank wagon and service station prices, both of gasoline and kerosene, in every section of the country. These advances have been great enough to discount all the advances which have taken place in crude oil, especially when it is considered that handlers admitted that gasoline was never cut as much as it might have been when crude prices were marked down. The reason given for this was that gasoline was the only real active item the industry had, and that all profits had to come from the one source.

There are no indications that declines in tank wagon prices are to be expected at this time, in spite of the softness of the refinery market. However, there is a disposition to believe that all the advances to be expected this winter have been made. The handlers take the stand that a lower price of gasoline from tank wagons would not increase consumption to any extent, and the claim has been made that, when crude prices were low, reductions in the price of kerosene to the small consumers did not increase consumption. It may be that price alterations will be made early in the new year, but few expect any changes before that time.

Plans for two steel tanks to be erected by the Standard Oil Co. at Baltimore, which will be erected at the southwest corner of First avenue and Fourteenth streets, Canton, will have diameters of 120 feet and a height of 40 feet, and will cost approximately $30,000.

CHICAGO OIL MARKET IS DULL WITH VERY LITTLE NEW BUSINESS

Some Activity in Gasoline Over Deliveries on Contract—Kerosene and Naphtha Very Quiet—Fuel Oil Not in Demand

CHICAGO, Dec. 8, 1921.

When asked how the markets were, one of the larger oil marketers said, "You might say, ditto last week, only more so." There is no question about the small amount of new business coming to hand from day to day nor of the outlook for a dull month and winter. The stormy season has set in and the country is in no shape for rapid transportation involving the use of gasoline as motor fuel. It is a pity that the roads are not better, and it is not the fault of many oil men. The farmer cannot seem to see in many cases how it increases the ease of living, the possibility of making money from his farm and the value of his land to have good roads. They object to paying assessments and want the users of the roads to pay for the improvements, as if the travelers were the only ones to benefit.

There is no great doubt that the gasoline tax is popular with many farm owners who figure that they are getting their roads improved with very small cost to them. The fact is, that it is not the oil company but the ultimate consumer that pays this gasoline tax, as is the case with every tax. The man who cannot pass it along is the one that pays. In several instances lately there have been evidences of a better appreciation of the value of good roads to the farmer and land owner and in some cases the taxpayers have voted to tax themselves a cent a gallon and devote it to improving the roads. There is one thing that the oil men should do; that is to see that the roads are built strong enough to carry heavy trucks and tractors, for these are necessary and will help him to dispose of his gas.

Reports from the industries that sell largely to the farming districts show that the farmer is not buying. There is no doubt of that. The two big mail order houses with headquarters in Chicago both show a serious falling off in sales for several months, and about one-third is the record. The owners of filling stations and the Standard Oil Co. corroborate this statement, for they say that the only place where gasoline is selling is in the country towns. This being the case, the slow demand is easily explained.

There is another feature of the recent market that is annoying to the local trade, and that is the way that refiners undersell their own prices. For example, the refiners in the field have been holding for $1.05 to $1.20 for fuel oil, yet fuel oil from some of the plants is being offered and has been right along by brokers at 80 cents, some say 75, but the 80 cents is known. The brokers are not to blame for trying to make money out of their blanket contracts, it is the refiner who does not stop to think what may be done with his contract oil. As a matter of fact, is there any reason why fuel oil should sell for less than $1.20 except that buyers can get it for less? It is surely worth 60 per centt. of the crude. But the cut prices made by brokers who must get their oil from some refiner is responsible, more than anything else, for the low prices made.

GASOLINE

The market continues active in deliveries on contract, but while there are more contracts in force than has been the case for several seasons, they do not assure the refiners an active demand the season through for all of their product, and the consequence is that some refiners are closing down and others will do so until the approach of the spring season warrants their resuming operations. The trouble has been that if a refiner closed down there was some big interest ready to take his contract for crude, but the bringing in of the prolific Mexia field with its independent interests may make it possible for the independent refiner to secure crude, not so much that the crude from this field is adapted to the purpose of a skimming plant as that the big fellows will supply themselves with this crude and let the smaller producers sell to the independent refiners. It may work that way, but maybe not, as the big fellows want a lot of crude, and they figure that they will sell a lot of gasoline next year.

But next year means next March, and that will not do the little refiner any good. The present market shows the result in a tendency towards concessions and a little easier tone. Prices are quotably lower:—56/58—450 is now offered at 13¼@13¾c.; 58/60—437 at 13⅞@14¾c.; 60/62—400 at 15½@16c., and 64/66—370 at 17½@18c. The blends are not so generally dealt in in this market. Most of the blended goods are sold direct and on contract, but there have been offers of the various grades mostly used from 62/64—450 up to 68/70—450 at 13@14c. Natural gasoline is also dull at 16c. for 80/84 casinghead and 16½c. for 72/76 absorption.

KEROSENE AND NAPHTHA

The kerosene market is dull and prices are quoted which show some decline from last week. There are a number of refiners who are asking 4¾c. for their kerosene, but there are others that are offering a regular 42/3 grade at 4¼ and 4½ at 3¾c. The marketers have been predicting easier prices. One of the largest said that it seemed to him that in kerosene the bears had it. He said that he could not be a consistent bear. The trouble is that the export trade has not materialized as was anticipated, and the stocks are becoming larger than is convenient.

Naphtha is called a dead issue here. The call from the industrial users is for the lowest grades and blends do them very well. This is outside of the paint and varnish industry where petroleum products do not seem to be making as rapid progress as they should in spite of the fact that they now have government approval for use in supplies of varnish and other products to the government, and are also used and approved of by large paint concerns. The rate for the 50/52—450 naphtha is 12½@13c. in this market. The demand might be called nominal.

FUEL AND GAS OIL

There has been little new business entered and little is expected until after the holidays. There is a more or less disorganized market due to the efforts apparently of some jobbers who own contracts that are expiring and have balances due on them to get something out of the deal. It really seems impossible to account for the market, as we have it here on any other hypothesis. Refiners are offering their fuel oil at a price much above what the same product can be had through a broker. Not all refiners, but in several instances, this has happened, and where it does happen there is a feeling of resentment which would make it well for the refiner to explain. It is hardly possible that the refiner is now selling one concern at so much less than another. It must be some old blanket contract that has not long to run. The market as a result of this unsettled condition of supplies and the rather limited demand has been quoted at 85@95c. by several good concerns.

Reports from Pittsburgh say that while notices had been sent to the industrial users of natural gas that their supplies would be shut off at any time on two hours' notice, the notices have been delayed and had not been issued up to last week owing to the mild weather prevailing which had not made any heavy drafts on the gas supply.

Gas il, one large gas company stated, had been offered it at 2¾c. over a term to the end of the winter months. The market has been held at around 3c. or a little better. There is, as usual at this time of the year little in the way of new contracts being offered, but deliveries on contracts already made are increasing with the shorter days and colder weather.

LUBRICATING OILS

Sellers' report that there is little doing right now. Jobbers are well supplied and the number of manufacturing plants in operation is not increasing. The railroads also note a substantial increase in the number of idle cars. Prices are freely maintained.

The refiners hope for some improvement in export movement. The decline of a cent a gallon made by the Standard Oil Co. on exports in cases due to the smaller cost of cases is expected to aid the shipper, but of late the demand has been for bulk shipments and casing or barreling on the other side, which seems a very reasonable way to do.

TANK WAGON MARKETS

When asked if there had been any change in prices a Standard man asked why any was expected. He said that under present conditions there was no reason so far as any oil man could see for an advance, and it was too early to talk declines. There have been no important changes in prices in any territory the past week. Here in Chicago the market is still 19½@21½c. on gasoline and 11½ on kerosene. The jobbers should be glad that they got that last advance when they did. They would not get an advance on kerosene now.

The jobbing trade is confined largely to the towns. Business is admittedly slow, even the Standard is having a quiet spell. In Chicago the Standard Oil Co. is going ahead with their plan for providing a filling station at such frequent intervals that no thirsty motor will have to go far to get its wants supplied. It is only a few brief years ago that the Standard Oil Co. (Ind.) was forced into the filling station game by being obliged to take over a lot of filling stations which it did not want. Today they are adding to their stations constantly and are planning stations which shall be larger and more elaborate than any in the country.

Maryland Proposes a Tax on Gasoline

BALTIMORE, Dec. 7, 1921.

With nearly all departments of the city government asking for increase in their appropriations and with the officials in charge of the municipal budget desiring for political and other reasons to make a good showing in reference to the local tax rate, there is a search for new sources of taxation, so that an appearance of a low rate may be created, even though in the end the individual pays just as much as before. Among the things to which attention has been directed several times as a source of much desired revenue, gasoline used for automobile fuel is receiving much notice. It is seriously proposed to impose a tax of one or two cents per gallon on all the gasoline sold for the operation of motor vehicles to give the schools a larger income, to carry on road construction work and to provide the means for several other activities designed for the public benefit.

One proposal, which emanates from John N. Mackall, chairman of the State Roads Commission, is to levy such a tax next year and eventually to substitute a system of this sort for the present automobile license fee system. Mr. Mackall is to explain his plan to officials of the two automobile organizations in the city at a meeting to be held here.

The Automobile Club has taken no action so far on the suggested legislation, but there is a meeting scheduled for December, when the subject will come up for consideration.

EASTERN FIELDS

143 Wells Finished, With 35 Gas Wells, 25 Dry Holes and New Production of 2,349 Barrels for Week

PITTSBURGH, Pa., Dec. 7, 1921.

A review of the high-grade petroleum fields east of the Mississippi River, comprising Southern New York, Pennsylvania, West Virginia, Southeastern, Central and Northwestern Ohio, Indiana, Illinois, Kentucky, Tennessee and Michigan, for the week, shows a slight falling off in the number of wells completed, but makes it up by an increase in initial production. The week's work shows 143 wells finished, with 35 gas wells, 25 dry holes and a new production of 2,349 barrels, and when compared with the previous week's figures show a decrease of 13 in wells completed and 15 less dry holes, while in gas wells there was an increase of one and an advance of 731 barrels in new production. This increase in production comes to a great extent from the shallow sand fields of Western Kentucky, as some good wells were discovered in Warren, Allen and Simpson counties. The first real snow of the season put in its appearance during the week and makes the mud roads almost impassable, and will naturally have some effect upon development work.

Field Conditions

The result of the drill in the older Pennsylvania regions during the week was more successful in finding of good gas volume than oil production, but as a whole the gas wells prove more valuable, as prices of natural gas in all cities in the high-grade fields are advancing. The scarcity of the gas is the real cause, along with the high expense of operations. Spots where big gas gushers were usually found, some that showed around 20,000,000 cubic feet in days gone by, are now showing from a million up to three or four millions, which are considered good wells, but these wells when hitched onto the trunk gas lines decline very rapidly, and that is what makes the prices advance. Six oil wells in the old Pennsylvania field only show a production all told of 25 barrels, but the present price of the Pennsylvania crude makes them valuable.

West Virginia is not showing its usual oil production nor its regular gas output. Out of 11 oil wells but 122 barrels were developed a day, which is light. In Ohio the week shows a total of 54 wells completed, with 268 barrels production, 22 gas wells and 11 dry holes. The bulk of this work was done in the Southeastern-Central area, as only 13 of the wells were in the old Northwestern Ohio area.

Indiana is very quiet, as is usually the case at this season of the year, although preparations are being made for pushing the drill early in the spring. There are acres of territory in Indiana that look favorable for production and an immense amount of virgin land yet to test out that may surprise the talent.

Illinois is also quiet, but quite a sensational find was made there during the week in review by the drilling of a deep well to the Trenton limestone formation by the Trenton Rock Oil & Gas Co., on the McFarland tract, in Martinsville township, Clark county. At a depth of 2,762 feet, the well, after being stirred up with a shot, produced 85 barrels in 15 hours. Several miles to the northwest some deep wells have been drilled to the Trenton and were producers, but the oil was usually found at depths around 2,400 feet. The new find shows conclusively that the old theory of not finding oil in the Trenton below the depth of 1,500 feet has been upset by the results so far obtained in the former shallow fields of Clark county. Just across the State of Illinois, and near Waterloo in Monroe county, to the southeast of East St. Louis, the wells are being found in the Trenton limestone at a shallow depth, less than 500 feet, showing a rapid rise in the formation from Clark county to the west.

Tennessee, while it has a number of drilling wells, failed to bring in anything to stir up excitement. The territory lies just at the back door of the shallow fields of Warren, Allen and Simpson counties, Kentucky, and the best shallow sand fields in existence at this time, and structures galore can be found over the territory known as the Western Highland Rim of Tennessee. The oil is there, but the drilling must be done in a haphazard way, regardless of structural locations or something. Another bright spot is in Southern Michigan, but several wells have been drilled as in Tennessee and nothing has been found. When the drill is sent down on the known structures, something should develop, being so close to the once famous Trenton limestone fields of Northwestern Ohio and Eastern Indiana.

Eastern Kentucky Runs

During the week the Cumberland Pipeline Co. gathered throughout the Eastern Kentucky fields a total of 67,825.06 barrels from the various producing sections, for a daily average of 11,304.18 barrels, which is only a portion of the oil produced in that section of the State, but it is the only company that makes its usual weekly reports of oil handled. These runs were distributed among the various districts, as follows:—

Big Sinking, 13,262.54 barrels; Blaine, 10,313.18 barrels; Oil Springs, 9,857.24 barrels; Ravenna, 5,873.10 barrels; Fitchburg, 5,467.97 barrels; Wheelersburg, 5,176.86 barrels; Pilot, 2,375.61 barrels; Zachariah, 1,952.32 barrels; Falcon, 1,871.31 barrels; Burton, 1,844.99 barrels; Susie, 1,381.02 barrels; Hell Creek, 1,164.58 barrels; Potter, 1,067.24 barrels; Ross Creek, 1,030.31 barrels; Elk Spring Valley, 699.53 barrels; Beattyville, 674.16 barrels; Fallsburg, 571.46 barrels; Parmleysville, 530.65 barrels; Cooper, 512.55 barrels; Menifee, 450.79 barrels; Cannel City, 363.69 barrels; Busseyville, 340.88 barrels; Wagersville, 310.40 barrels; Steubenville, 283.51 barrels; Campton, 267.03 barrels; Beaver Creek, 182.14 barrels.

Western Kentucky

There is a much better feeling among the operators of the Western Kentucky fields, for the announcement made during the week by the pipeline companies is that all oil will be purchased from December 1 at the posted price of Somerset crude, which is $2.40 per barrel. This is the credit balance price paid for the same grade oil in the Eastern Kentucky fields by the Cumberland Pipeline Co., which does not have any gathering lines in the Western Kentucky division. The first company to construct gathering lines in the Western Kentucky regions was the Indian Refining Co., which started taking crude from the field some four years ago at a price 32 cents lower than Somerset prices, but the construction of this line, which at that time was confined to Allen county, as there was no production in Warren county at the time, gave the operators in the field an opportunity of marketing a portion of their crude and has been a great help toward the making of the Western Kentucky field.

Later on the Petroleum Refining Co. entered the Warren county field and purchased oil at 20 cents less than the Somerset quotations. When the Oakline Pipeline & Refining Co. purchased the interests of the American Pipeline & Refining Co. in Warren and Allen counties and started the construction of a refining plant at Bowling Green, in Warren county, it announced that with the completion of its refinery it would pay the flat Somerset price for the crude, as did the Riggs Refining Co., which is also installing a refining plant at Bowling Green. No doubt this brought about the meeting of the Somerset price by the Indian Refining Co. and the Petroleum Refining Co. The Indian Refining Co. still holds some contracts at the 32 cents per barrel reduction, but as soon as those contracts expire these operators will also be paid the regular price. The price now will be universal among the various lines handling crude in the Western Kentucky regions unless someone starts a bonus price for the crude, which is doubtful, as the lines will have all the oil that they can take care of for a period at least, and the opening of spring will see a rush of the drill in at least several of the present producing counties adjoining Warren county, where the big production is at this time.

The Paragon Development Co., a subsidiary of the Paragon Refining Co., which big plant is located at Toledo, O., has constructed a line to the rich pools in Warren, Simpson and Logan counties and is shipping the crude to its plant in Ohio. The Indian Pipeline Co. will be in better shape to handle a larger production when it completes its proposed pipeline from its big refinery at Lawrenceville, Ill., to Owensboro, Ky. When this line is completed the oil will be shipped by tank cars to Owensboro and then run through the pipeline to Lawrenceville, but there is a rumor that the line will be continued on from Owensboro to the Allen county field, which will bring the line along a long stretch of territory through Kentucky that looks like oil territory, and will mean the drilling of a vast number of test wells from the Ohio River south as far as the Kentucky-Tennessee line.

It is reported that Bolsom & Co. of St. Louis, Mo., have just purchased from Hurshburg & Tracy the lease on the John Ogles tract, near the hamlet of Petroleum, south of Scottsville, in Allen county, Ky., with twenty completed wells, for a reported price of $50,000, and will further develop the property by the drilling of additional shallow wells.

There is quite a revival in development work in the eastern part of Warren county along Bays Fork Creek, the dividing line between Warren and Allen counties, in the famous Willoughby-Sledge pool. The Associated Producing & Refining Corporation of St. Louis, Mo., and New York is now drilling five wells on the Sledge tract, and the Walmer Oil Co. is drilling a well on the Pearson tract. The Daiber interests are arranging to start pumping their five wells on the big Ewing Willoughby tract, where the well that opened the Willoughby-Sledge pool was first brought in. The Willoughby tract is a 365-acre lease and has room for at least 150 wells and is shallow sand territory less than 500 feet in depth, with a possible deeper pay sand below the salt water sand.

In the northeast corner of Simpson county a new pool was opened up some months ago by the American Engineering & Development Co. on the Pugh tract, and much activity is going on there at the present time, and it is among the most active pools in the field. No. 1 Pugh tract came in at 400 barrels and Nos. 2, 3 and 4 proved flowing wells at a shallow depth of around 500 feet. Four additional wells now drilling on this tract are nearing the pay sand level. On the Pottet tract, which adjoins the Pugh tract, Young, Henley & Co. have brought in two nice wells, being Nos. 1 and 2, which started flowing at 300 barrels each. Some weeks ago Drake & Co. brought in a 500-barrel shallow sand gusher on the Summer tract, and it is still producing around 300 barrels. No. 2 was drilled in a few days ago, flowing around 400 barrels a day. There are about twenty wells drilling in the Pugh pool at this time. Across the line in Logan and Warren counties many wells are also under way, and it will be a lively spot in 1922.

Recent completions on the Satterfield tract, along the Scottsville pike, in Allen county, operated by Sam Bradhaw, have proven the areas between the Willoughby-Sledge pool and Allen Springs district. To date five wells have been completed on the Satterfield tract, with an initial production of 150 barrels. At present considerable new work is being started in that vicinity. Three wells are drilling and many new drilling machines are being moved to territory between the Willoughby-Sledge pool and the Satterfield pool. Recently the Sledge tract was sold for a handsome figure. The new owners have commenced work on the drilling for several additional wells. Famous No. 4 on the Sledge tract made better than a thousand barrels daily for four months, and the new owners expect to find more of the same kind.

New Wells

The new wells for the week, with the name of well owner, well number, tract on which located in each county and field, by States, excepting gas wells, were as follows:—

Kentucky

ALLEN COUNTY.—Tuckeney Oil Corp., Nos. 1 and 2 J. W. Hensen tract, 5 and 200 barrels; Seaboard Oil Co., No. 44 McReynolds tract, 10 barrels; same, No. 45 Hooten tract, 5 barrels; Fenway Oil & Gas Co., No. 1 Yates tract, 5 barrels; Keis & Clinger, No. 12 Lee Williams tract, dry; White Plains Oil Co., No. 28 Oliver tract, 10 barrels; B. Hinton, No. 2 Widow Dyson tract, 10 barrels; Brazil Oil & Gas Co., No. 6 Sam Hood tract, 25 barrels; Maryland-Kentucky Oil Co., No. 1 Entz tract, 25 barrels; Joe Bentley, No. 1 Prescott tract, 25 barrels.

WARREN COUNTY.—Hunt Oil Co., No. 4 Covington tract, 5 barrels; Petroleum Exploration Co., No. 4 Albert Lewis tract, 100 barrels; Eagle Oil & Gas Co., No. 6 Kinzer heirs tract, 100 barrels; E. M. Treat & Co., No. 4 Grider-Gardner tract, 100 barrels; Big Bend Oil Co., No. 2 Jim Johnson tract, 150 barrels; McClurkin & Farley, No. 5 Tut Stovall tract, 20 barrels; Levinski & Co., No. 3 Shank tract, dry; Bradford Oil Co., No. 5 J. Martin tract, 20 barrels; W. E. Burns, attorney, No. 5 W. L. Seibert tract, 10 barrels; Normandy Oil Co., No. 2 Davenport tract, 10 barrels; Davenport Oil Co., No. 7 Johnson tract, 30 barrels.

SIMPSON COUNTY.—Drake & Co., No. 2 Summers tract, 400 barrels; Sentinel Oil Co., No. 1 E. McCreary tract, 60 barrels; Wilson & Co., No. 1 C. Flinn tract, 10 barrels; Petroleum Prospecting Co., No. 1 Holland tract, 25 barrels; Young, Henley & Co., No. 2 Pottet tract, 300 barrels; Pilot Knob Oil Co., No. 1 George Moberly tract, dry; same, No. 1 Wilkerson tract, dry.

CUMBERLAND COUNTY.—White, Spellacy & Moore, No. 2 Lelia Smith tract, dry; same, No. 1 John Radford tract, dry; Johns & Patterson, No. 1 F. F. Smith tract, 8 barrels; same, No. 1 J. E. Morrison tract, 2 barrels; Sheridan Oil & Gas Co., No. 1 Sallie Thomas tract, dry; Wicks & McKee, No. 1 Frank Radford tract, and No. 1 John Alexander tract, both dry; C. A. Gartlan & Co., No. 1 J. A. Nealy tract, dry.

BARREN COUNTY.—Lew Emery, Jr., & Son, No. 15 W. N. Woodson tract, 10 barrels; Read & Co., No. 1 W. Butt tract, dry.

LOGAN COUNTY.—Springfield-Auburn Oil Co., No. 10 Mose Wall tract, 50 barrels.

JOHNSON-MAGOFFIN COUNTY.—O. C. Southerland & Co., No. 5 E. & M. Conley tract, 5 barrels.

WAYNE COUNTY.—Beach Hollow Oil Syndicate, No. 1 Dodson tract, dry.

HART COUNTY.—J. H. Harper, No. 1 Rowletts tract, dry.

Pennsylvania

BEAVER COUNTY.—E. S. Hoops, No. 2 Torrence tract, 2 barrels; McKean & Thompson, No. 8 Ferguson tract, 1 barrel; James Abrams & Co., No. 1 Fleshman tract, 2 barrels.

ALLEGHENY COUNTY.—John Walley & Co., No. 2 Foss heirs tract, 2 barrels; Yolton, Jones & Co., No. 3 Quinn tract, dry.

WASHINGTON COUNTY.—Simpson Brothers & Co., No. 1 Alexander tract, 15 barrels; Leonard Oil & Gas Co., No. 1 McKeown tract, 3 barrels.

GREENE COUNTY.—Hughes Oil & Gas Co., No. 1 Hughes tract, dry.

West Virginia

RITCHIE COUNTY.—Katy Oil Co., No. 1 Taylor tract, 5 barrels; Dennis O'Brien, No. 62 Wood County Petroleum tract, 2 barrels; Hope Gas Co., No. 1 Peter Wass tract, dry; C. W. Elder & Co., No. 1 Layfield tract, 2 barrels.

GILMER COUNTY.—Burgess Oil Co., No. 1 K. Miller tract, 20 barrels; Laurel Creek Oil Co., No. 1 M. R. Ellis tract, 8 barrels.

PLEASANTS COUNTY.—Rexroad & Davis, No. 1 Wm. Bills tract, dry; A. S. McCullough & Co., No. 2 E. C. Owen tract, dry; Richwood Oil Co., No. 1 Adams tract, dry; Sun Co., No. 3 Meterill tract, dry.

DODDRIDGE COUNTY.—Hope Construction & Refining Co., No. 2 W. E. Wolfe tract, 10 barrels.

WOOD COUNTY.—L. Bickle, No. 1 Mary B. Smith tract, 10 barrels; Grant Farm Oil Co., No. 4 Grant tract, dry.

WIRT COUNTY.—James R. Dodworth & Co., No. 4 Little Kanawha Log & Tie Co. tract, dry; W. C. Patterson, No. 4 Johnson-Prentice tract, 3 barrels.

HARRISON COUNTY.—Manufacturers' Light & Heat Co., No. 1 Cullian tract, 2 barrels.

ROANE COUNTY.—Heck Oil Co., No. 4 H. C. Roach tract, 50 barrels.

LEWIS COUNTY.—South Penn Oil Co., No. 1 H. B. Straley tract, 10 barrels.

JACKSON COUNTY.—Buffalo Oil & Gas Co., No. 1 Murray tract, dry.

Southeastern-Central Ohio

MEDINA COUNTY.—Kundtz & Hulse, No. 1 Mary Walker tract, dry; Brinkerhoff & Co., No. 1 Crawford tract, dry; Ohio Fuel Supply Co., No. 3 Paul Knott tract, dry.

PERRY COUNTY.—Sensenan & Fair, No. 16 McGovern tract, 2 barrels; Planet Oil Co., No. 1 Householder tract, dry; Bristol Oil Co., No. 1 Brown tract, dry.

HOCKING COUNTY.—Carter Oil Co., No. 3 W. C. Mahlon tract, 50 barrels; Logan Gas Co., No. 1 Mary Huffman tract, dry.

WASHINGTON COUNTY.—Wingett Run Oil & Gas Co., No. 1 Thomas tract, 2 barrels; Peoples Banking & Trust Co., No. 16 Bergen Oil Co. tract, 3 barrels; J. D. McVey & Co., No. 1 Becker tract, dry.

KNOX COUNTY.—G. S. Lacknett & Co., No. 2 Fredeick tract, 2 barrels; Hellinic Petroleum Co., No. 2 Horn tract, 2 barrels.

HOLMES COUNTY.—Logan Gas Co., No. 1 J. Snyder tract, 4 barrels.

VINTON COUNTY.—Ohio Fuel Supply Co., No. 1 S. D. Oviatt tract, dry; same, No. 2 G. B. Bancroft tract, dry.

ATHENS COUNTY.—Kimbler Oil & Gas Co., No. 1 Sinott heirs tract, 25 barrels.

MUSKINGUM COUNTY.—Wilber Oil Co., No.'s 1 and 2 J. W. Elson tract, 5 barrels each.

MONROE COUNTY.—Brown Brothers, No. 1 Etta Brown tract, 2 barrels.

ASHLAND COUNTY.—Ohio Fuel Supply Co., No. 1 Koch tract, dry.

Northwestern Ohio

HARDIN COUNTY.—Roundhead Oil & Gas Co., No. 2 Erwin Hiles tract, 30 barrels; St. Mary's Construction Co., No. 1 C. Simpson tract, dry.

ALLEN COUNTY.—Wienkin Oil Co., No. 1 D. J. Gengler tract, 40 barrels; Charles Shongood, No. 6 Rohrback tract, 15 barrels.

OTTAWA COUNTY.—Onsel-Hanrahan Oil Co., No. 4 Hilgenick tract, 8 barrels; W. A. and V. C. Miller, No. 5 Riedman tract, 5 barrels.

AUGLAIZE COUNTY.—Vossler & Co., No. 1 C. Vossler tract, 10 barrels; Ohio Oil Co., No. 7 Grubbs tract, one barrel.

SANDUSKY COUNTY.—N. & H. Oil Co., No. 2 Joseph Homan tract, 25 barrels.

DARKE COUNTY.—Cole Oil & Gas Co., No. 4 W. C. Discher tract, 22 barrels.

VAN WERT COUNTY.—N. T. Stoudt & Co., No. 1 Rickard tract, 10 barrels.

Indiana

PIKE COUNTY.—Consolidated Oil & Development Co. No. 7 Q. McDaniels tract, 62 barrels; J. S. Young & Co., No. 1 McRoberts tract, 2 barrels.

Illinois

CLARK COUNTY.—Trenton Rock Oil & Gas Co., No. 1 McFarland tract, 85 barrels.

LAWRENCE COUNTY.—Big Four Oil & Gas Co., No. 31 E. J. Seed tract, 20 barrels.

MONROE COUNTY.—East St. Louis Drilling Co., No. 3 Wismuth tract, 10 barrels.

The Week's Work

The well's for the week in the high-grade fields east of the Mississippi River were distributed among the various States as follows:—

	Comp.	Prod.	Gas.	Dry.
Pennsylvania	15	25	7	2
West Virginia	24	122	5	8
S. E.-Central Ohio	41	102	20	10
Northwestern Ohio	13	166	2	1
Indiana	2	64	..	..
Illinois	3	115	..	..
Kentucky	45	1,755	1	4
Totals	143	2,349	35	25
Previous week	156	1,618	34	40
Difference	13	731	1	15

Distribution

The above wells were distributed by fields and counties in each State as follows:—

PENNSYLVANIA.—Greene, 5 wells, 1 dry, 4 gas; Allegheny, 4 wells, 1 dry, 2 gas, 2 barrels; Washington, 3 wells, 1 gas, 18 barrels; Beaver, 3 wells, 5 barrels.

WEST VIRGINIA.—Ritchie, 4 wells, 1 dry, 9 barrels; Gilmer, 4 wells, 2 gas, 28 barrels; Pleasants, 4 dry holes; Doddridge, 3 wells, 2 gas, 10 barrels; Wood, 2 wells, 1 dry, 10 barrels; Wirt, 2 wells, 1 dry, 3 barrels; Harrison, 2 wells, 1 gas, 2 barrels; Roane, 1 well, 50 barrels; Lewis, 1 well, 10 barrels; Jackson, 1 dry hole.

SOUTHEASTERN - CENTRAL OHIO.—Medina, 6 wells, 3 gas, 3 dry; Perry, 5 wells, 2 dry, 2 gas, 2 barrels; Hocking, 4 wells, 1 dry, 2 gas, 50 barrels; Washintgon, 4 wells, 1 dry, 1 gas, 5 barrels; Knox, 4 wells, 2 gas, 4 barrels; Holmes, 3 wells, 2 gas, 4 barrels; Vinton, 3 wells, 2 dry, 1 gas; Athens, 2 wells, 1 gas, 25 barrels; Muskingum, 2 wells, 10 barrels; Wayne, 2 gas wells; Jackson, 2 gas wells; Monroe, 1 well, 2 barrels; Fairfield, 1 gas well; Licking, 1 gas well; Ashland, 1 dry hole.

NORTHWESTERN OHIO.—Hardin, 4 wells, 1 dry, 2 gas, 30 barrels; Allen, 2 wells, 55 barrels; Ottawa, 2 wells, 13 barrels; Auglaize, 2 wells, 11 barrels; Sandusky 1 well, 25 barrels; Darke, 1 well, 22 barrels; Van Wert, 1 well, 10 barrels.

INDIANA.—Pike, 2 wells, 64 barrels.

ILLINOIS.—Clark, 1 well, 85 barrels; Lawrence, 1 well, 20 barrels; Monroe, 1 well, 10 barrels.

KENTUCKY.—Allen, 12 wells, 1 dry, 345 barrels; Warren, 10 wells, 1 dry, 540 barrels; Simpson, 7 wells, 2 dry, 795 barrels; Cumberland, 9 wells, 7 dry, 10 barrels; Barren, 3 wells, 1 dry, 1 gas, 10 barrels; Logan, 1 well, 50 barrels; Johnson-Magoffin, 1 well, 5 barrels; Wayne and Hart, 1 dry hole each.

EASTERN FIELDS—GAS

PITTSBURGH, Pa., Dec. 7, 1921.

The week in the gas regions of the high-grade fields east of the Mississippi River proved a productive one from a business standpoint, as the wells averaged up above some of the former weeks. This average was boosted when the Ohio Fuel Supply Co. drilled in what is reported a 9,000,000 cubic foot gas well, casinghead measurement, on what is known as the Burk tract, but is now owned in fee-simple by the company that drilled the well, which is on a 40-acre tract. The wells completed for the week numbered thirty-five, with a volume of 74,100,000 cubic feet, an average of a little over 2,000,000 cubic feet to the well. This gas can be utilized to good advantage, as there is a shortage, especially when the product is used in so many heating furnaces in many of the large cities adjacent to the gas fields, and it is only a question of time until the furnace heat will have to be changed and the natural gas used alone for cooking purposes, as the volume and rock pressure of the fields are on the wane.

WEST VIRGINIA

Only a Few Small Producers Found in This Field During Week

CHARLESTON, W. Va., Dec. 7, 1921.

West Virginia oil fields had little to offer during the past week out of the ordinary. On Brushy Fork of Sand Creek, Reedy district, Roane county, the Heck Oil Co. completed No. 4 on the H. C. Roach farm. It is showing for a 40 or 50-barrel producer in the Berea grit. It is thought that the producing area of the pool has been defined, but there is still room for a large amount of interior work.

Quite recently there has been a good demand for producing properties with a settled production. In most instances when a property is placed on the market the asking price is too high for the consideration of conservative operators.

The heavy rains of the past week have put the roads in a deplorable condition, making it impossible to get machinery and drilling materials to the fields. It is reported that throughout this State taking supplies to the various sections under development has been suspended. There is no section that is pressing for development. There is no new, and the old can wait for improved conditions.

On the Wood county petroleum tract, Grant district, Ritchie county, Dennis O'Brien has drilled No. 62 through the Berea grit, and showing for a very light pumper. On Elm Run, in the same district, the Katy Oil Co. has completed a test on the George Taylor farm. It is showing for a 4 or 5-barrel pumper in the Salt sand.

In Clay district, Wirt county, James R. Dodworth & Co. have drilled their No. 4 on the Little Kanawha Log & Tie Co.'s tract through the sand, and dry. In the same district E. H. Lockhart is drilling in the sand at his No. 5 on the J. C. Hale farm. W. C. Patterson's No. 4 on the Johnson-Prentice farm is a 3-barrel pumper in the Big Injun sand. In Burning Springs district J. W. Graham & Co. are due in the sand at a second test on the A. Eagle farm.

Lewis County Work

In Freeman's Creek district, Lewis county, the Weston Carbon Co. has placed rig material at the location for a second test on the G. L. White farm. In Carroll district, Lincoln county, the Orlando Oil & Gas Co. is due in the Salt sand on the F. F. Adkins' farm. In Henry district, Clay county, the Leatherwood Oil Co. is starting a wildcat on the Elliott Splint Coal Co.'s tract. It is in a section that has not been well tested, and will be watched with considerable interest. In Big Sandy district, Kanawha county, the United Fuel Gas Co. has made a location on the Estaline Campbell farm.

On Willow Island Run, McKim district, Pleasants county, Dinsmoor & Co. have completed and shot their test on the Wilson heirs farm. The well is producing 25 barrels a day from the Cow Run sand. On Bear Fork of Cove Creek, Troy district, Gilmer county, the Philadelphia Oil Co. has completed in the Gantz sand a second test on the H. E. Patton farm and showing for a 4-barrel pumper.

In Clay district, Wetzel county, the Miller Gas & Oil Co. has a Big Injun sand gasser at a test on the Belle Robinson farm. In Southwest district, Doddridge county, the Pittsburgh & West Virginia Gas Co. has a gasser in the Big Injun sand at No. 8 on the W. B. Maxwell farm. In Sardis district, Harrison county, the Philadelphia Oil Co.'s test on the J. D. Dye farm is completed and dry in all sands. In Proctor district, Wetzel county, the Hope Construction & Refining Co. has a light show of oil in the Gordon sand at No. 4 on the Albert McHenry farm.

In Central district, Doddridge county, L. Williams & Co. are building the rig for a test on the G. W. Williams farm. In McElroy district, Tyler county, the Manufacturers' Light & Heat Co. has started to drill on the L. W. and G. Nichols farm. In the same district Baker & Egan are drilling at 800 feet on the Davis Tustin farm. In Sardis district, Harrison county, the Vesper Oil & Gas Co. has started to drill another test on the Elizabeth H. Baccus farm.

On Dent's Run, Mannington district, Marion county, the Blackshere Oil & Gas Co. has now drilled its test on the Gordon Atha farm through the Fifth sand, and it is dry in all formations. In the same district the Eastern Petroleum Co. is due in the Fifth sand at a second test on the O. N. Koen farm. In Paw Paw district the Owens Bottle & Machine Co. is drilling at 1,200 feet at a test on the W. D. Barbe farm.

In Batelle district, Monongalia county, the Manufacturers Light & Heat Co., has put its second test on the J. D. Bane farm to pump-

ing from the Gordon sand. It is producing 10 barrels a day. The same company has the rig completed for a second test on the Albert Efaw farm and William Haught is drilling No. 6 on the A. P. Haught farm. In Clay district the Carnegie Natural Gas Company is due in the Big Injun sand at a second test on the Tennant farm.

On Tow Head Island, in the Ohio River, Poe district, Hancock county, the Cluster Island Oil Co. has completed and shot in the Berea grit its test on the A. G. Boyles farm. A light gas pressure and nothing more was developed in the Berea grit. In Richland district, Ohio county, H. L. McKowan has now drilled his test on the Richland Coal Co.'s property through the Big Injun sand. It is a duster and has been abandoned. It is 2,500 feet south of H. B. Seybold & Co.'s producer on the Warwood Land Co.'s property.

In Lafayette district, Pleasants county, the Monongahela Oil Co. has completed No. 25 on the F. Wagner farm. It is a duster in the Cow Run sand. In Union district Eddy & Cunningham have moved a drilling machine to a location on the Selmon Wells farm. The Well Oil Co. is due in the Cow Run sand at a test on the Barr-Tice farm. In Union district, Tyler county, Holmes Bros. have a 10-barrel pumper at No. 5 on the William Holmes farm.

In Smithfield district, Roane county, the United Fuel Gas Co. shot its old gasser, No. 4 on the Daugherty farm, and it is showing for a 5-barrel pumper in the Big Injun sand. This well was completed about eight years ago. In Spencer district the Spencer Oil Co. is due in the sand at a test on the J. M. Carpenter farm.

In Jackson county, Washington district, the Carter Oil Co. has started to drill on the Daniel Evans farm. In the same district the Ohio Fuel Co. is drilling a second test on the M. V. Rhoades farm. The same company has a 10-barrel pumper at its test on the L. E. Rhoades farm. In McKim district, Pleasants county, Dinsmoor & Co. have started to drill a test on the Wilson heirs farm.

In Reedy district, Roane county, the Heck Oil Co. has started to drill tests on the C. B. Davis and S. F. Sheppard farms. The same company has rigs completed for Nos. 4 and 5 on the Mary S. Green farm. In Ravenwood district the Fisher Oil Co. has the rig completed for another test on the J. D. and P. C. Anderson farm.

In Grant district, Wetzel county, the Kanawha Oil Co. is down 2,360 feet at No. 135 on the John Mills tract, and is fishing. In the same district the Richwood Oil Co. has the rig completed for No. 12 on the John Mills farm. The Carnegie Natural Gas Co. has made the location for a second test on the O. P. McIntyre farm.

Near Ellenboro, Ritchie county, R. W. Elder & Co. are dismantling their rig on the James Musgardner farm and will erect it at a location on the W. F. Rollins farm. On Bond Creek, Clay district, the test on the Asa Parker farm is due to get the sand in a few days. In the same district, Yates, Flanigan & Co. have the rig completed for a test on the E. E. Wells farm. In Centerville district, Tyler county, the Bond Oil Co. is due in the Maxon sand at a test on the B. S. Smith farm.

In DeKalb district, Gilmer county, the DeKalb Oil Co. is building the rig for a test on the George Nutter farm. In the same district Satterfield & Co. are building a rig on the M. F. Fling farm. In Sheridan district, Calhoun county, Godfrey L. Cabot has made the location for a test on the Odis McCarthy farm. In Lee district the Holbert Oil Co. has part of the rig material at a location on the Alfred Betts farm. In Grant district, Ritchie county, the Hope Construction & Refining Co. is starting a test on the Neil Bradley farm.

In Walker district, Wood county, L. Bickle has completed in the Berea grit his test well on the Mary B. Smith farm. It is good for 10 barrels a day. In the same district the Grant farm Oil Co. has drilled No. 4 on the George Grant farm through the Berea grit. It it a duster and has been abandoned.

Twenty-Barrel Producer Found

On Tanners Creek, DeKalb district, Gilmer county, Burgess & Co. have completed a test on the K. Miller lot. It is showing for a 20-barrel producer in the Maxon sand. The same parties have the rig completed for a test on the W. A. Moore lot. The Laurel Creek Oil Co. has an 8-barrel pumper at a test on the M. R. Ellis farm.

At the headwater of Taylor Run, Southwest district, Doddridge county, the Philadelphia Oil Co. has a gasser in the Big Injun sand at No. 9 on the W. B. Maxwell farm. On Sinking Creek, DeKalb district, Gilmer county, the Hope Construction & Refining Co. drilled through the Big Injun sand at its test on the B. Reynolds farm. It is a fair gasser in that formation.

In Center district, Gilmer county, the Carnegie Natural Gas Co. has a show for a producer in the Maxon sand at a test on the James H. Arbuckle farm. In the same district the Smokeless-Peerless Coal Co.'s test on the Ore and Lee Boggs farm is a gasser in the salt sand. In Washington township, Jackson county, the Buffalo Oil & Gas Co. is through the Berea grit at a test on the E. M. Murry farm. It is a duster.

In Grant district, Ritchie county, C. W. Elder & Co. have a light pumper in the Big Injun sand at a test on the George T. Layfield farm. In Murphy district the Hope Natural Gas Co.'s test on the Peter Wass farm is through the Berea grit and dry.

In Sardis district, Harrison county, the Pearcy Oil Co. has started to drill a test on the Nathan Goff farm. On Ten Mile Creek Ernest Randolph is drilling on the Arby Varner farm. In Clay district, Monongalia county, J. H. McDermott & Co. have started to drill another test on the Rezin Pyles farm. In Paw Paw district, Marion county, the Randall Gas Co. has rigs up for tests on the John E. Mitchell and Thomas J. Floyd farms. In Clay district, Monongalia county, the Moore-Tex Oil Co. is rigging up at a No. 7 on the Solomon Myers farm. In the same district J. P. Thomas has a rig up on the E. A. Husk farm.

SOUTHEASTERN OHIO

COLUMBUS, O., Dec. 7, 1921.

It is something of a relief to be able to report a good producer after a long run of light pumpers. In the deep sand territory in Southeastern Ohio, in section 12, Hopewell township, Licking county, the Pure Oil Co. has completed and shot in the Clinton sand No. 8 on the Scott Kreager farm. The well produced 140 barrels the first fourteen hours after shot. It is 700 feet west of the same company's test on the C. T. Laughman farm.

In the same township the same company has started to drill a test on the Wince heirs farm. In Hanover township W. W. Wehrle is drilling a test on the E. N. Myers farm. The Carter Oil Co. is drilling a test on the Eliza Kreager farm. In Bowling Green township the Midland Oil Co. has the rig completed for a test on the Samuel Cooperrider farm. In the same township there are eight rigs up that have been standing for some months.

In the new development at Tunnel, Warren township, Washington county, another good producer has been drilled in. It is the Central Oil Co.'s No. 9 on the Hanna heirs farm. Having been drilled into the Macksburg 500-foot sand, it is showing for a 50-barrel producer. It is 700 feet east of the good producer on the George Eammons farm. In the same district, Buckley, Perry & Co. have a light pumper at No. 6 on the Charles Tratchel farm. In the same locality Hanna Bros. have the rig completed and started to drill a test on the Hanna heirs farm.

During the past few months this district has been supplying some very creditable wells, some of which have started at more than 100 barrels a day. Fewer wells were completed in the old fields than the preceding week.

In Windsor township, Morgan county, the Penova Oil & Gas Co., after several years of idleness, has come back and is drilling No. 6 on the Elien Rardin farm. In Penn township, Lukens, Evans & Co. are due in the sand at a test on the John Pierpont farm. E. A. Metcalf has a ten-barrel pumper at his second test on the Beach heirs farm. S. J. Bogard & Co. are drilling a test on the Henry Diest farm.

In the southwest quarter of section 7, Cass township, Muskingum county, Ralph Bros. have drilled a test on the Charles Mortimer farm through the Clinton sand. The well is a duster, three-fourths of a mile southwest of the Federal Oil & Gas Co.'s gasser on the Millard Nethers farm. In the northeast quarter of section 16, Green township, Hocking county, the Plymouth Oil & Gas Co. has the rig completed for a test in the Gilbert Davis farm, three-fourths of a mile east of production.

In the Salswell district, Center township, Noble county, Lee Davis & Co. have completed two tests on the John McWilliams farm. Both are light pumpers in the 500-foot sand. They are one and one-half miles northeast of production, on the O. E. Heisler farm. In Enoch township, L. A. Wickens & Co. have a three-barrel pumper at No. 5 on the L. A. and Ella Harper farm.

In Jackson Ridge district, section 19, Center township, Monroe county, the Hamilton Oil Co. has a duster in the Big Injun sand at a second test on the S. E. Hamilton farm. In Newport township, Washington county, Isaac Mendelhall & Co. are starting another test on the Isaac Mendelhall farm. In the same district the Brown Oil Co. has a five-barrel pumper in the Cow Run sand at No. 6 on the Braun heirs farm.

In section 2, Green township, Monroe county, Frank Ward & Co. have completed a test on the Jefferson Stewart farm. It is one and one-half miles south of the Carter Oil Co.'s second test on the S. L. Mooney farm, and is a duster. In the same district, located one and one-half miles east of the test on the John McCoy farm, William Monahan & Co. have drilled a test on the H. K. Elliott farm through the Big Injun sand and it is showing for a two-barrel pumper.

In the deep sand territory, Jackson township, Perry county, the Northern Oil Co. has the rig completed for No. 4 on the John Killingier farm. In the same district, the Planet Oil Co. & Strum are hauling rig timbers to a location on the Samuel Forsythe farm. In Reading township, the Carter Oil Co. has rigs up on the Samuel Crosson and M. O. and M. P. Solt farms. John D. Barber & Co. have the rig completed for another test on the Margaret Stoltz farm.

In section 3, Perry township, Monroe county, Brown Bros. have completed a test on the Etta Brown farm and it is showing for a two-barrel pumper in the Maxon sand. In the Warner district, Aurelius township, Washington county, P. H. Jackson & Co. have drilled through the Berea grit at a test on the P. H. Jackson farm. It is one mile north of production.

In the Rinards Mills district, Ludlow township, Washington county, the Wingett Run Oil & Gas Co. has completed a test on the G. L. Thomas farm. It has a very light show of oil in the second Cow Run sand. It is 1,000 feet southwest of the Carter Oil Co.'s test on the Eliza B. McMullen farm.

In the Cow Run district, Salem township, J. D. McVey & Co. have drilled their test on the Edward Becker farm through the Berea grit. It is a duster. In the same district, the People's Banking & Trust Co. has completed No. 16 on the Bergen Oil Co.'s lease. It is a very light pumper in the first Cow Run sand.

In shallow territory, section 2, Clay township, Knox county, the Hellenic Petroleum Co. has a very light pumper at a second test on the Eli Horn farm. In section 24, Glass & Smith have a light pumper at a test on the H. and L. Adrian farm. In Howard township, G. S. Lackett got one of the same kind at a second test on the A. W. Frederick farm. In Green township, Ashland county, the Preston Oil Co. is drilling a test on the James Goff farm.

KENTUCKY

Operators Are Slowing Up Work, but Making Plans for Next Year

LOUISVILLE, Ky., Dec. 7, 1921.

It is claimed that Kentucky producers are not holding back production at this time, due to reports of overstocked conditions of many of the refiners, who have been getting in large quantities of crude, while the change in the Mexican situation is resulting in storage being well filled up. It has now been several weeks since there was an advance in the price of crude oil, following the spectacular rise in the early fall months. With cold weather consumption of gasoline is falling off somewhat, while demand for fuel oil is not improving materially as a result of slow industrial conditions and the fact that railroads and steamship companies are not burdened with tonnage movements and not consuming the usual amount of fuel. Kerosene, of course, has been slightly more active, as is natural in the winter season.

It is believed by some of the operators that the day is not distant when crude prices will begin to slump, although there is some argument advanced to the effect that the higher grade crudes, containing larger proportions of gasoline and higher quality bases for motor oils, may continue at around present levels. No one has forgotten the big slumps of last winter. Of course, severe weather would automatically reduce new production and slow up old producing wells. However, the situation is beginning to look a trifle critical.

October Production Increased

A report received by the Kentucky State Tax Commission shows that October oil production in Kentucky increased over September about $500,000 in valuation, October showing 705,703.20 barrels, valued at $1,600,068.77, on which the State gets a tax of $16,000.69. In September production was 719,654.04 barrels, valued at $1,048,630.66, carrying a State tax of $10,486.47. Lee county led the State with 321,692.54 barrels, valued at $715,814.49, paying a State tax of $7,158.34. Magoffin was second with 70,188 barrels, valued at $179,509.54; tax, $1,795.25. Numerous counties have taken advantage of the right to levy a ½-cent production tax for roads, which Lee county has done.

It is reported that in November the Cumberland Pipeline Co. took 279,553 barrels of crude oil out of the Eastern and Southeastern Kentucky districts, where its network of lines are located. The bulk of the production was from Lee, Estill and Magoffin counites. At the prevailing price of Somerset crude this oil was worth around $700,000 to the producers.

It has been announced that the St. Clair Oil Co., a large independent company, with offices in New York and Tulsa, Okla., has acquired about 3,000 acres of land in Red Bush district of Johnson county, Kentucky, one of the promising newer fields of the State. Perry A. Rowe, civil engineer, having returned to Lexington after completing a portion of the survey. The acreage is on Laurel Creek of Big Blaine and South of the famous Keaton pool. The company has just started a drilling campaign on the property, starting two wells, one on the William Skaggs lease and another on the Don Skaggs tract. Wells in this district are being drilled about 38 feet into Weir sand, are averaging about 10 barrels of settled production, frequently showing 100 barrels or better on the flush, and are held to be good for fifteen years.

Field Operations

A report from Barbourville, Ky., under date of December 3, relative to field operations in the State, was as follows:—

"While the Kentucky petroleum fields have failed to show a resumption of old-time activity, following the doubling of crude oil prices, the trade as a whole is laying plans for a general renewal of activity just as early during the coming year as weather conditions warrant. The late advances in the crude oil market came just at the time when retrenchment in new contracts had been pretty generally carried out, and in view of the lateness of the season, many operators decided to defer a general renewal of drilling until spring. At the present time roads in many of the pools are next to impassable, and this condition will continue to get worse as the winter season advances.

"In late field work the Western Kentucky pools show the most promising results. Shallow sand drilling in the Warren and Allen pools has resulted in a number of good strikes. One of the best of ten late completions on the Warren county side was the Baker-Jones Oil Co.'s No. 4 Jones' lease, starting at 100 barrels. The Lester interests have a 75-barrel showing in a recent completion on the Jackson lease, Glen Lily pool.

"Several deep sand completions were reported for the week, none of large capacity. Probably the best of the deep oilers was the completion of Cincinnati operators on the Morris lease, showing for 35 barrels at 1,150 feet. The Lincoln Heights Oil Co. has a strike of 25 barrels' capacity on the Smith lease at 1,100 feet.

Allen County's Small Strike

"In Allen county the best of late strikes was a 20-barrel producer on the Smith lease, the property of the Monitro Oil Co. Simpson county reports include two 10-barrel pumpers and a number of failures. In Logan county two dry holes and one producing well, of 10 barrels' capacity, are reported for the week. In this district the Washington Oil Co., said to be a Standard subsidiary, will begin the immediate development of 22,000 acres of leases.

"In Barren county, Glasgow district, late tests have shown a number of gas wells. A number of late tests within the city limits of Glasgow have shown a considerable flow of gas from a shallow sand. The Elam Oil & Gas Co. is developing a proven petroleum area three miles from Glasgow, and has established its own pipelines.

"In Eastern Kentucky districts the Johnson-Magoffin field of the Big Sandy Valley continues to get the greater part of new development. In Magoffin county the Prater interests are reported to have a 25-barrel strike on the Power lease, while the Venus Oil Co. has one of 15 barrels' capacity on the Wheeler lease. On the Arnett lease Eastern Kentucky operators have drilled a gas well which shows a daily yield of 2,000,000 cubic feet. A gas well drilled by the Elkhorn Coal Co., Adams lease, has a yield of 1,000,000 cubic feet.

Small Producers

"The Louisville Gas Co., drilling on the Dodson lease, has a petroleum showing of 10 barrels in its initial test. A number of late strikes in the Johnson-Magoffin pool yield from 2 to 10 barrels daily.

"In Lawrence county the Union Oil & Gas Co. has a 20-barrel producer on the Gambriel lease, this being the best of three completions credited to that county for the week.

"In Southeastern Kentucky, Wayne county district, two wells yielding 5 to 10 barrels and one dry hole are reported. In Clinton county the only completion of the week was a dry hole. No late completions are reported from the Cumberland-Monroe district.

"In upper Kentucky very little has been accomplished in the Lee-Estill-Powell-Wolfe fields. One ordinary strike is reported from Lee county, and one dry hole in Estill county.

"Kentucky's total production for October was 715,741 barrels. The report on the output for the last month is expected to show a small increase over this total."

SOUTHWEST PENNSYLVANIA

WAYNESBURG, Pa., Dec. 7, 1921.

At rare intervals some of the old fields present a very creditable producer. Light pumpers or dry holes are the rule in most districts. Owing to a great desire to secure a little more new production wells are drilled in proximity to others that have been completed for a score or more of years. In the Southwest Pennsylvania fields there is still room for a lot of this kind of work.

In the old Hopper pool, northwest of Bridgeville, Washington county, Pa., Simpson Bros. & Co. have drilled the sand and shot a test on the G. M. Alexander farm. In two days the well filled up 800 feet with fluid and is estimated to be good for 10 to 15 barrels a day. If this well proves as good as indicated it will call out some new work in that locality. Last year the South Penn Oil Co. and other parties completed producers in the vicinity of the well on the Alexander farm.

In the Duff City district, Allegheny county, L. S. Ahaffer & Co. have completed No. 4 on the William Speck farm. It is a gasser in the Boulder formation. In the same district the Middle States Oil & Gas Co. is drilling at 1,500 feet at a test on the Bradshaw farm. Noble & Co. are drilling at the same depth at a test on the Schuring farm.

In old Ferguson pool, in Beaver county, McKean & Thompson have completed No. 8 on the Samuel Ferguson farm. It is little better than a duster. James Abrams & Co. test on the Martin Fleshman farm is good for two barrels a day. Mary Reed has started to drill a test on the F. J. Miller farm. T. C. Dawson & Co. have shot and cleaned out their No. 6 on the J. B. and A. M. Buckhannon farm, increasing its production to three barrels a day.

In the Mt. Morris district, Greene county, the People's Natural Gas Co. has a Gordon sand gasser at a test on the Charles Kerr farm. The same company's test on the J. L. Garrison farm, which got some gas in the Pittsburgh coal, is now drilling down. The Philadelphia Co. has a gasser at a test on the Sarah Cole farm.

In South Franklin township, Washington county, the Manufacturers' Light & Heat Co. has drilled in a fourth sand gasser at a test on the S. A. Dague farm. In East Finley township the Leonard Oil & Gas Co. has drilled down to the fourth sand an old gasser in the S. A. McKeown farm and showing for a three-barrel pumper.

In the Dorseyville district, Allegheny county, P. L. Keil & Co. have a gasser at their test on the Smith heirs farm. John Walley & Co. have a two-barrel pumper at a second test on the Foss heirs farm. Guckert & Co.'s old test on the S. S. Simpkins farm has been drilled down and is showing for a light pumper.

The new development in the South Hills district, Scott township, is the most active in Allegheny county. There are eight wells drilling and two rigs up ready to start. By the end of the week there will be several wells due to get the sand. In the Imperial district, Yolton, Jones & Co. have a duster at their No. 3 on the William Quinn farm. In the same district the Lorish Oil & Gas Co. is drilling a test on the Charles Lorish farm. In Greene township, Beaver county, E. S. Hoopes has a two-barrel pumper at a second test on the Frank R. Torrence farm.

In Wayne township, Greene county, the Carnegie Natural Gas Co. drilled its test on the W. H. Johns farm to the Bayard sand and developed a fair gas pressure in the lower sand. In Jackson twonship the Hampson Oil Co.'s former gusher on the Hampson farm, completed during the early summer, is still holding up at 80 barrels a day.

In Green township, Greene county, Jesse L. Garad has drilled his test on the U. L. Ruse farm through the Dunkard sand. It is a duster. In the same district Fred Garrison & Co. started to drill a test on the C. D. South farm and have shut down at a depth of 450 feet.

In Canton township, Washington county, Hughes & Day have drilled a test on the A. C. Bungard farm through the fourth and fifth sands. It is a gasser in both formations. The same parties have the rig completed for a test on the S. C. Johnston farm. The Riverview & Finigyville Oil & Gas Co. has started to drill another test on the W. Fry heirs farm.

In Springhill township, Greene county, the New Freeport Gas Co. has a gasser in the Dunkard sand at a test on the John Minor farm. In Jackson township the Hughes Oil & Gas Co. has drilled a test on the Roseberry Hughes farm through all sands and it is dry. In Ritchie township the Headley Oil & Gas Co.'s test on the Headley farm is a gasser in the Gordon sand.

NORTH LOUISIANA

Good Producer Completed in Dolet Lake District by Robinson-Fair Co.

SHREVEPORT, La., Dec. 5, 1921.

The most interesting feature of the past week's development in the North Louisiana field was the completion of a good producer in the Dolet Lake district, three miles south of the Bull Bayou district in De Soto parish. The well was drilled by the Robinson-Fair Oil Co., which consists of C. W. Robinson, J. Y. Snyder, geologist, of Shreveport; W. H. Harper, of Shreveport, and A. A. Fair, Jr., of Mansfield.

The well is located in section 4-11-11 on a 40-acre lease, and came in with an initial production estimated at 1,500 barrels. While an attempt was being made to set the liner it blew in, bridged over, then cleaned itself out and came back with an increased production, making a very important extension of the field and bringing De Soto development again into the limelight. The production was obtained 40 feet deeper than in any previous development in this territory, and the Robinson-Fair interests will go back into their first well on the same lease which was completed as a gasser and drill deeper for oil. Their last well was completed at a depth of 2,695 feet.

The Texas Co. is extending its pipeline to handle the new production, and already there is considerable new development in prospect in the neighborhood of the new well. The Lanier Drilling Co., which owns several hundred acres of leases in this vicinity, is planning an extensive drilling campaign, and the Simms Oil Co. is already drilling at a depth of 2,550 feet ni a test in section 7-11-11 on one of the Lanier leases.

Syndicate Seeks Pool

Plans have been completed and contracts signed for the beginning of one of the most important campaigns to uncover an oil pool in Ouachita county ever organized. Land owners in the Monroe field have joined forces and pooled over 3,000 acres of land in sections 23, 24, 19 and 31, township 18, range 5 east, and turned it over to a syndicate without bonus, so sure are they that oil will be found on the property. It is the intention of the syndicate to spend more than $100,000 in development work, and drilling on the property is to begin on or before January 1.

The syndicate is composed of H. T. Brummett, of El Dorado, Ark.; Dr. J. A. Phillips, geologist, and the Julian interests, of Oklahoma and El Dorado. For the past three months geologists have been in this region making a survey, and the location for the first well will probably be about six miles northeast of Monroe, the test to be started with a 16-inch hole and drilled to a depth of 3,000 feet, if necessary.

City officials of Alexandria, La., are this week in New York conferring with the directors of the Southern Carbon Co. relative to construction of a pipeline from the Monroe gas fields to Alexandria.

An interesting test is to be drilled by the United States Drilling Corp., E. C. Brewer et al., within the corporation limits of Springhill, in northwestern Webster parish. The location is in section 12-23-11, and is known as J. F. Giles No. 1. Preparations are now being made to drill, and the test will be watched with interest, as it is located about six and one-half miles northwest of the Portland Syndicate's 44,000,000-foot gas well and about the same distance west of the Sinclair gas well.

The Reserve Natural Gas Co. is stringing pipe for a 16-inch gas line from Shreveport to the Bethany gas field in Panola county, Texas, and the new line will have a capacity of 60,000,000 cubic feet per day.

Drilling Operations

Haynesville

The Amerado Petroleum Co. has rig up for No. 1 Hudson and derrick for No. 2, in section 17-23-8. Barlow & Ahlfeldt's No. 1 Haynesville Lbr. Co. has hole full of fluid, bailing at 2,836 feet, section 24-23-8, and in the same section they have derrick up for No. 2. Belchic & Laskey are drilling at 2,300 feet in No. 1 McOrr, drilling at 1,400 feet in No. 2 McOrr, both in section 27-23-8. Bernstein, trustee, is drilling at 300 feet in No. 2 Goree, section 27-23-8. The Clark & Greer Oil Co. tested salt water with a small showing of oil at 2,815 feet, and are awaiting orders for No. 1

Parker, section 28-23-8. C. O. Day, trustee, is drilling at 2,100 feet in No. 2 De Loach, section 22-23-8.

The Gilliland Oil Co. is drilling at 2,735 feet in No. 2 Stonecipher, section 16-23-8; drilling at 1,000 feet in No. 2 De Loach, and has made location for No. 3 in section 22-23-8; drilling at 600 feet in No. 1 Bond, and has derrick up for Nos. 2, 3 and 4 in section 21-23-8, and has made a location for No. 1 J. H. Coon in section 15-23-8. The Gulf Refining Co. is drilling at 470 feet in No. B-6 King, section 25-21-8, and is drilling at 542 feet in No. 12 Chatman, section 30-21-7. In section 26-23-8 they are drilling at 2,078 feet in No. 1 Winn, and in section 6-22-4 they set 8-inch casing at 1,670 feet in No. 1 Alford. Greer et al. are drilling at 1,500 feet in No. — C. H. Taylor, section 7-23-8. Price Harrell et al. No. 1 Brinkley shows salt water and no oil at 1,478 feet, section 15-23-4. Hawthorn et al. No. 1 Elmore is being drilled at 1,400 feet, section 33-23-8. The Haynesville Star Oil Co. is drilling at 700 feet in No. 1 Crump, section 9-23-7.

Smitherman-McDonald are drilling at 1,500 feet in No. 2 Charles Taylor, section 16-23-8. The Standard Oil Co. set six-inch casing at 2,681 feet in No. 1 Barker, section 21-23-8; four-inch drill stem is stuck at 2,530 feet in No. A-2 Barker, section 21-23-8; rigging up No. A-3 Barker, section 21-23-8; set ten-inch casing at 122 feet and drilling at 1,280 feet in No. B-1 Barker, section 21-23-8; drilling at 2,590 feet in No. 3 Aiken, section 27-23-8, and drilling at 1,290 feet in No. 1 Lewis, section 28-23-8. Tarver & Murphy are drilling at 2,500 feet in No. 3 Aiken, section 27-23-8. The Tarver Oil Co. is drilling at 700 feet in No. 2 Brookley, section 27-23-8.

Townesley & Ellis are setting six-inch casing at 2,693 feet in No. 1 Hearne, section 28-23-8. The Western Oil Field Corporation is drilling at 2,100 feet in No. 1 Lewis, section 28-23-8. Wideman et al. are waiting water for No. 3 Hunt in section 16-23-8. Zeigin et al. are arranging to swab No. 2 Williamson at 2,771 feet, section 28-23-8; set ten-inch casing at 149 feet and drilling at 1,400 feet in No. 3 Williamson, section 28-23-8, and in the same section they set six-inch casing at 2,765 feet in No. 1 Brazelton.

Chandler et al. are drilling at 2,115 feet in No. 1 Mobley, section 28-20-11. Langhorn et al. are drilling at 200 feet in No. 1 Morgan, section 34-18-12. McClanahan et al. tested dry with a small showing of oil at 2,004 feet in No. 1 Thigpen & Herold, section 15-20-13. The Standard Oil Co. has derrick up for No. 4 A. F. McDade, section 12-16-12, and has rig on location for No. 2 A. W. Roos, section 14-16-12.

Pipeline Runs Increase

The pipeline runs for the past week show an increase of 5,165 barrels a day, the Haynesville district being chiefly responsible for the larger output. Production from the various districts totaled 120,415 barrels, distributed as follows:—Caddo, light, 7,625; Caddo, heavy, 4,280; De Soto and Red River, 8,775; Haynesville, 32,350; Homer, 22,760; El Dorado, 44,625; total, 120,415; last week, 115,250; increase, 5,165 barrels.

Completions for Week

HAYNESVILLE.—Day Trustee's No. 1 De Liach, section 22-23-8, swabbing 300 barrels at 2,793 feet. The Gilliland Oil Co.'s No. A-1 Guy Taylor, section 19-23-8, flowing 3,000 barrels at 2,812 feet. The Houston Oil Co.'s No. 1 Knox, section 20-23-8, flowing 200 barrels at 2,790 feet. The Louisiana Oil Refining Corporation's No. 2 Bond, section 21-23-8, flowing 2,000 barrels at 2,753 feet. The Louisiana Oil Refining Corporation's No. 3 Bond, section 21-23,8, flowing 700 barrels at 2,787 feet. Palmer Trust's No. 2 McOrr, section 27-23-8, flowing 200 barrels at 2,813 feet. The Standard Oil Co. of Louisiana's No. 2 Aiken, section 27-23-8, swabbing 150 barrels at 2,848 feet.

DE SOTO PARISH.—Robinson & Fair's No. 2 Horton, section 4-11-11, flowing 700 barrels at 2,695 feet. Sterrett et al. No. 2 Glauque, section 5-11-11, flowing 2 barrels of oil and 25 barrels of salt water at 2,705 feet.

BOSSIER.—George O. Baird & Co.'s No. 1 Montgomery, section 18-16-11, making 14,000,000 cubic feet of gas at 831 feet.

CADDO PARISH.—The Sun Co.'s No. 112 Landis, section 25-21-15, dry and abandoned at 3,028 feet.

OUACHITA PARISH.—The Southern Carbon Co.'s No. 1 Spades, section 35-19-4E, making 4,000,000 cubic feet of gas at 2,177 feet.

UNION PARISH.—The Darbonne Oil & Gas Co.'s No. 1 Darbonne Timber Co., section 14-19-2E, dry and abandoned at 3,003 feet.

GULF COAST

Orange and West Columbia Have Two New Producers, One of 2,000 Barrels and the Other of 1,000 Barrels

HOUSTON, Texas, December 5, 1921.

Interest in coastal operations continues to center around the two new producing districts, Orange and Pierce Junction, with some brisk trading in leases in the semi-wildcat district, Barber's Hill, in Chambers county, coupled with rumors of some new activities there in the near future. Most of the new work as actually shown by derricks is in the two former districts. Other fields, while showing in most instances more rigs operating, show a tendency to work over old wells instead of starting new ones. This program has been under way at Goose Creek for the past two years and is now being followed by Hull and West Columbia. The latter now has half a dozen in the big well section, either working over or preparing to do so. Most of these are deepened, coming back as big a well as in the beginning, and are a fine return for the amount of labor and time invested.

Although no large well was completed in any of the 19 districts of the Gulf Coast in the week ended December 3, new production totaled 6,040 barrels from 10 producers, with the output nearly equally divided between Orange and West Columbia. The former had two new producers, one of 2,000 and one of 1,000 barrels, a total of 3,000 barrels new production, while West Columbia had a workover of 2,000 barrels; a new well of 800 barrels and a workover of 35 barrels, all on the east side of the field. The balance of new production for the week included the Saratoga well, placed on the pump for 75 barrels, and a workover of 20 barrels and two workovers at Goose Creek with a total of 110 barrels. The Gulf had three flowing wells, two at West Columbia and one at Orange. Also two failures at Pierce Junction, while the Atlantic Oil Producing Co. had a failure at Pierce Junction and a gusher at Orange.

Pierce Junction was out of luck with three wells abandoned as salt water propositions, all at advanced stages in the center of the field, south of the Snowden & McSweeney wells. They have been tinkered with for some time and are the few failures among so many new producers. Their failure to make good, so near big producers, shows a fault in the formation, a common occurrence in coastal fields, and does not indicate that the field is petering out.

Orange Makes Good

This district is looking better and better as each new producer is completed. Orange is older than Pierce Junction, but until last summer had only completed wells that showed a large per cent. of salt water and which, when this was shut off, made fairly good wells on the pump but did not show for a big field. However, after the first big well at Pierce Junction was completed at nearly 4,000 feet, the Orange Petroleum Co. ventured below what was considered the regular producing level at Orange—around 3,000 feet—and, at 3,250 feet, completed a good well practically free from salt water, which was followed by one of the Edgerly Petroleum Co. at about the same depth.

In all 21 wells had been completed at Orange December 3, but less than a dozen are deep ones, and these are the ones which practically all of the present production comes from. This district has completed five of them within the past two weeks and expects as many more the next two, and with probably 40 rigs running by the middle of the month and several tests at advanced depths, many other completions may soon be expected, so that the field may soon be rivaling Pierce Junction for second place in the Gulf Coast as producing center. It will have to go some to head off West Columbia, although the latter field shows little activity at present outside of working over some big wells.

Last week Orange had 35 rigs rotating and a dozen new tests with derricks up and rigs either en route shipment or actually rigging. At least as many more will be set up as fast as machinery arrives. The daily average last week was about 10,000 barrels a day. It is expected to run two or three thousand barrels higher this week, even if no further wells are completed. Two or three others are testing, which may further affect production before the week closes.

Two New Wells

Two new wells last week included the Atlantic Oil Producing Co.'s No. 1 Briggs-Moore, which is flowing about 1,000 barrels at 3,190 feet. This is not quite as deep as the other late wells and the crude is not so good, and will have to be treated before being run through pipelines. The Gulf Production Co.'s No. 1 Winfree was completed at the close of the week for 2,000 barrels, making that amount through choker, and may qualify for larger production before this week closes. Its producing depth is 3,250 feet. The crude from this field has not been discriminated against as have Blue Ridge and Pierce Junction and is bringing $1.25 per barrel, same as the other, older fields are quoted for.

Orange Activities

The Atlantic Oil Producing Co. has another rig on the way to the field to rig up No. 2 Moore and No. 1 Pevito is testing. The Humble Oil & Refining Co.'s No. 1 Tasco and the Orange Petroleum Co.'s No. 3 Chessons should be completed next, the former around 3,400 feet, where it is trying to shut off salt water. The Orange Petroleum's No. 3 Chessons is around 3,350 feet. The Humble has resumed drilling in No. 5 Chessons after setting six-inch at 3,540 feet. This shows that deeper drilling is to be expected. Another one is the Thrift Oil Co.'s No. 1 McGuire, in gumbo below 3,500 feet. The Amereda Petroleum Co. is preparing to test No. 1 Granger at the usual depth and is sidetracking No. 1 Kishi-Lang at 2,900 feet. Among the new interests which have recently entered the field, the Link Oil Corporation is down 2,000 feet in No. 1 Adams-Hart, having been held up by a stratum of hard rock.

The J. H. Thomas Oil Co. has just been organized and has leased a rig from L. F. Bincenssin to deepen a test drilled some time ago by the Elenor Oil Co. on the Mary Williams tract, where it was abandoned at 3,000 feet. The Gulf Coast Oil Corporation is adding another rig. It has one test drilling and two derricks. Another local company just organized is the Beck Petroleum Co., which is planning to start development work on leases recently secured. The Gulf Production Co. leads in number of rigs running at Orange, having no less than ten, while the Humble Oil & Refining Co. has seven or eight.

Activities at Pierce Junction

These two companies predominate at Pierce Junction also. The drilling campaign here is newer and not in full swing yet. The Gulf already had extensive holdings when its gasser, No. 2 Taylor, began to spray oil, but the Humble only entered the field after the Texas Exploration Co. completed two wells north and northwest of production. It has bought the Texas Exploration out in this district and is planning extensive development. While it had only one rig running last week, the one on the Dooley 13 acres near the producer, No. 4 Dooley, and where No. 5 is drilling at near the pay, the company is setting up for three new tests on the Dooley 16 and 13 acres adjoining the other piece and is also rigging up two tests on the Fitzsimmons tract, to the northwest, near the Fitzsimmons producer, and also has derricks for Nos. 1 Cooper and Whitehead in the same locality. The Gulf Production Co. has had eight or nine rigs running, kept busy drilling offset wells along the east line of the Taylor 640 acres. Some of these have been completed but new offsets on the two tracts it has out of the Cain land have been begun to offset new tests on the Dooley, and it also has located for No. 1 Fitzsimmons-Hammon to the northwest and for No. 1 Whitehead-Hammon. The Sun Co.'s rig was the only one running in this locality last week, drilling its No. 1 Fitzsimmons at 1,600 feet, but the Humble's tests should spud in this week.

To the Southwest Also

A joint test is being rigged up to the southwest of production, in the locality where Drummett et al. made such a brave stand to get a well in No. 1 Mowery, and who were forced to shut down below 4,000 feet on account of a bad hole. The showing made was considered sufficiently encouraging to cause the Atlantic Oil Producing Co., Link Oil Corporation and Humble Oil & Refining Co. to combine to drill a test on the Mowery land near it.

Near Completions

The Gulf Production Co. is testing No. 9 Taylor in the main field at 3,860 feet. Indications are it will make a big well and its completion is hourly expected. It offsets one of Snowden & McSweeney's new producers, No. 3 Cain. No. 8 Taylor, offsetting Snowden & McSweeney's other new producer, No. 2 Cain, is drilling near the sand and should also be an early completion. The Gulf has abandoned No. 6 Taylor, offsetting the Atlantic Oil Producing Co.'s No. 1 Howe, south of the Brooks producer, and the Atlantic has also abandoned its test at 4,180 feet as a salt water well. The Gulf's test was abandoned at 4,250 feet. This company tested No. 4 Taylor last week but failed to get anything so placed it on air, but still it was a failure and was abandoned as a salt water well at 4,160 feet. The Seagate Petroleum Co.'s No. 1 on the Maxey-Cain is said to show favorably for a good producer. The test is down around 3,900 feet and is of more than passing interest, as its completion as a producer would extend the present producing horizon half a mile northeast of the Snowden & McSweeney wells and a quarter of a mile east of the Dooley producer. John Deering et al., on the Link ten acres to the southeast, is also being watched for the same reason; it is said to show favorably at several different depths, now drilling somewhere around 4,050 feet. As tests are now drilling in practically all directions from production, a certain amount of work is naturally doomed to failure, as no salt dome was ever known to produce all around the circle. But until the location is proven, the dance goes on.

Sinclair Enters

The latest interest to begin active operations is the Sinclair Oil & Gas Co., which has a derrick up for No. 1 Hope about 2,500 feet north of the Humble's No. 4 Dooley producer. The Dooley well holds up at 400 barrels a day, pipeline oil. The company has spudded in Nos. 1 and 2 on the Dooley 16 2-3 acres. The two new wells by Snowden & McSweeney held up last week around 6,000 barrels each. The Gulf Production Co. has spudded in No. 11 Taylor near the new wells, and is near producing depth in No. 10 Taylor, some distance north in the extreme northeastern corner of the tract, offsetting, on the southwest, the Dooley well.

Barber's Hill

The new producer at Barber's Hill held up around 600 barrels a day, flowing through choker, making light gravity oil containing 33 per cent. gasoline. The pity of these light gravity in the coast country is that the refineries are not fitted up to handle this grade of crude, so, though it is far more valuable, it does not sell so rapidly and its very gravity causes it to evaporate. It would seem to be a paying proposition for some one to start a small plant here to handle this crude, especially since Blue Ridge and some Pierce Junction wells show for light gravity.

Blue Ridge

More activity at Blue Ridge is shown by a number of interests coming back to try further for a well in tests they shut down some time ago. Blue Ridge crude, with one exception so far, has all been light gravity. While the field is only making 800 barrels a day the pipeline companies have deemed it worth their while to cut it to 80 cents per barrel, the same as Pierce Junction, some six miles to the northeast. This should not discourage those having leases at Blue Ridge, for when the field has been developed and the locality where the regular coastal gravity oil is located the field will no longer be discriminated against, and the small amount now available above what the field uses as fuel for drilling is not going to break anybody even if it is worth less. Coastal crude of from 24 to 24 gravity Baume scale is rich in lubricating qualities and is extensively used in the making of lubricating oils in local refineries along the ship channel. The North Texas oils are used for gasoline. Seven rigs are running at Blue Ridge, with activities equally divided to the southwest and northeast, with a long stretch of prairie between the two clusters of derricks.

West Columbia

Production slump for the Gulf coast last week averages was caused mostly by the sanding up or stopping of the Texas Co.'s No. 40 Hogg, restored the week before. The Humble's No. 31 Japthet, restored at about the same time, is still flowing, making 5,000 barrels. The field yet far outdistances any other of the coast and is not likely to yield first place for some time yet. The Humble Oil & Refining Co. is working over Nos. 11 and 29 on the prolific Japthet tract, with No. 29 testing in about 50 feet of sand at 3,505 feet. The Texas Co. is also preparing to work over a number of its best wells that have sanded up, now that it has but four or five rigs drilling new ones. The most interesting is No. 58 Hogg, which is being deepened. It lies 400 feet due south of No. 49 Hogg, which is the offset of the Abrams gusher.

Both No. 1 Abrams and No. 49 Hogg had an initial production of from 26,000 to 30,000 barrels a day and are considered the biggest wells ever completed in the field. No. 1 Abrams is still flowing between 200 and 300 barrels a year and a half after completion. No. 49 Hogg was killed by the company by pumping mud into the hole, for reasons of its own, when the field showed for flush production. No. 58 Hogg, to the south, threatened to blow out while drilling last spring below 2,300 feet, but was finally carried to 2,515 feet on June 1, where it flowed 5,000 barrels for a time, then gradually decreased. Now the company has gone back farther into the sand. The Abrams gusher was completed a little below 2,700 feet, which is very shallow for such a big producer. Its big neighbor to the south, No. 49 Hogg, was completed at a little less than 2,700 feet. By the showing made No. 58 Hogg, now drilling at 2,550 feet in sand, may be another Abrams.

Goose Creek

Goose Creek has 18 rigs running, although most of its work is working over wells. Two of them were completed last week—the Humble's No. 23 Gaillard for 60 barrels and the Sun Co.'s No. 3 Wright for 50. Five locations have recently been made for new tests. The deep sand, around 4,500 feet, is also to be more extensively developed. The Gulf has six rigs running, the Humble three. The latter company is placing No. 5 Dannenbaum on the pump and deepening No. 30 Schilling, a test it took over from the Simms interests and which has been shut down for a long time. The Goose Creek Oil Corporation will place No. 5 Freeman, a submerged test, on standard rig around 3,500 feet.

Humble has the usual workovers drilling by the Texas Co. in the deep-sand section, while some distance northeast John Deering is sidetracking No. 2 Bissonnette, second deep test in this locality, which had got down to 3,800 feet, within 400 feet of the producer, said to be the deepest ever completed as an oil well in the field. The Texas Co. is placing No. 254 Landslide on the pump and is testing No. 6 Stevenson fee, with two or three others near completion.

Damon Mound has seven rigs running again. The Sinclair Oil & Gas Co. tested No. 22 Bryan at 2,800 feet, but salt water broke in, which the company is trying to shut off. Derrick is up for a new test—No. 23 Bryan. Much interest is taken in the company's No. 1 Lockwood, but no direct information can be obtained about it. However, it is known to be in a sand around 2,900 feet.

Completions

Following is a list of completions in coastal districts for the week ended December 3:—

GOOSE CREEK.—Humble Oil & Refining Co., No. 23 Gaillard, pumping 60 barrels at 3,560 feet. Sun Co., No. 3 Wright (workover), pumping 50 barrels at 2,575 feet.

ORANGE.—Atlantic Oil Producing Co., 1 Briggs-Moore; flowing 2,000 barrels at 3,190 feet. Gulf Production Co., 1 Winfree; flowing 2,000 barrels at 3,250 feet.

PIERCE JUNCTION.—Atlantic Oil Producing Co., 1 Howe; abandoned as salt water well at 4,165 feet. Gulf Production Co., 4 Taylor; on air; abandoned as salt-water well at 4,160 feet. Gulf Production Co., 6 Taylor; abandoned at 4,320 feet.

SARATOGA.—Paggi Brothers, No. 2 Queen City (workover); pumping 20 barrels at 600 feet. Cotton Oil Co., No. 17 Ogden; on pump; 75 barrels at 2,000 feet.

WEST COLUMBIA.—Gulf Production Co., 1 Eyers (old well worked over); flowing 2,000 barrels at 2,850 feet. Gulf Production Co., 4 H. Masterson; flowing 800 barrels at 2,880 feet. George Hyde et al. (Great Belt Oil Co.), 3 Hyde (worked over); 35 barrels at 2,480 feet.

Drilling Operations

The following table is a condensed summary of all drilling activities in each district of the Gulf coast division, including those in South Louisiana and the San Antonio district of Texas, for the week ended December 3:—

Districts.	Comp.	Prod.	Aban.	Der.	Drg.	Tot.
Edgerly	..	...	..	1	1	2
Jennings	..	...	..	..	1	1
Vinton	..	...	..	..	4	4
Ansel le Butte..	1	...	1	..	2	2
Barber's Hill..	..	...	..	..	..	..
Batson	..	...	..	..	1	1
Blue Ridge	..	...	..	1	7	8
Damon Mound	..	...	..	1	6	7
Goose Creek	2	110	..	2	14	16
Hull	..	...	..	1	6	7
Humble	..	...	..	..	7	7
Markham	..	...	..	..	..	..
Orange	2	3,000	..	20	35	55
Pierce Junction.	3	...	3	15	15	30
Saratoga	2	95	..	..	2	2
Somerset	..	...	..	12	4	16
Sour Lake	..	...	..	..	1	1
Spindletop	..	...	..	..	1	1
West Columbia	3	2,835	..	3	14	17
Miscellaneous..	..	...	..	12	51	63
Total	13	6,040	4	68	172	240
Last week	12	27,710	2	55	172	227
Difference	1	21,670	2	13	..	13

NORTH CENTRAL TEXAS

Big Companies Rushing to Get Into Mexia Field with Their Pipelines—Fish Pond Well Sold For $700,000

FORT WORTH, Texas, Dec. 5, 1921.

The stretch of territory lying immediately to the east of the great Balcones Fault in the North Central Texas area, and extending from the Red River south as far as Leon, Robertson and Milam counties, is experiencing one of the greatest exploration campaigns that has ever been known in any part of this country. This section embraces the great Mexia oil field, and everybody in all that country is oil mad. They talk oil, dream oil and in most places they are getting oil. For a distance of not less than 50 miles lying east of the fault line there is hardly a square mile of territory that has not been scouted by lease men, and there is comparatively very little unleased acreage in the district. Every county in the territory named has its test well, and in most of the counties there are several tests going down. Geologists have tramped over practically every acre of this great stretch of territory and nearly every bit of it is possible oil producing land.

An expert oil scout on a recent visit to Mexia predicted a series of pools extending along the eastern approach to the great Balcones Fault. He said these pools, separated by stretches of dry territory, would likely extend from the Red River on the north to as far as the Brazos River on the south. Beyond that he would make no speculations, but he would not condemn any territory even outside of these rough boundaries.

Extensive drilling is now under way along this fault line from the Red River to the Brazos River. The most intensive work is being done in Limestone, Freestone and Navarro counties, with considerable work under way in Kaufman county on the north and Robertson county on the south. Geologists have made excellent reports on sections of Leon, Robertson, Milam Falls, Anderson, Henderson, Kaufman, Van Zandt, Wood, Rains, Hunt and Hopkins counties.

Probably never in the present oil age has there been such a scramble on the part of the big oil concerns to get into a field with their pipelines than there is now to get into the Mexia field. True, there was an unprecedented scramble for oil at the time of the early development in the Ranger territory, but that effort on the part of the big purchasing companies probably will have to take second place to the movement that is now on in the Mexia district.

Six months ago Mexia was suffering from the effects of a severe blow which had been given the field from various sources. Some of the big pipeline companies were refusing to run the oil from the field, and Colonel Humphreys, then practically the only producer of any consequence, had either to shut down his wells or to run the oil into earthen storage.

Three months ago the field began to show signs of renewed activity. Today it is regarded as the greatest oil field anywhere in the entire country. Some of the companies that a few months ago were refusing to run oil from the field are now building their lines into Mexia and are scrambling for crude from the field.

There are now six pipelines either under construction or proposed for the field. Of these the Magnolia line and that of the Humble company are far in advance of others. The Texas Co. announced last week the intention of completing a line to the field by the first of the year. An eight-inch line of the Humphreys Pure Oil Co. will be built direct from the Mexia district to the Gulf coast. That the Prairie Pipeline Co. and very likely the Sinclair interests will build lines from the field connecting with their trunk lines in the North Central Texas field is now accepted as a fact. These six lines will be able to handle a minimum of 150,000 barrels of oil daily. There is some talk that the Gulf Production Co. will also have a line into the field, but no definite announcement of this has been made, although rumored. This big effort on the part of the purchasing companies to get into the field is a

great stimulus to development. Almost daily the field reaches new heights of activity and now is extending to the outlying districts.

Activity is brisk in the eastern part of Navarro county and northwest of Wortham several drilling contracts have been let the past week. White, Linebolt & Co. have blocked up 5,000 acres within the vicinity of Dawson. Ashburn of Eastland county and Howard Marr of Dallas have blocked up more than 2,000 acres within the vicinity of Navarro Mills and will start operations as soon as material can be assembled. Others have blocked up considerable acreage within the vicinity of Jester and Blooming Grove will get a thorough test within the next few months. Wells were drilled in the vicinity of Purdon eleven years ago at a depth of 900 to 1,100 feet, all of which were heavy gassers, and the fraternity is firm in the belief that production will be found when the Woodbine sands are penetrated in that section.

20,000 Acres Producing Area

The actual producing area of the Mexia field today is roughly estimated around 20,000 acres. This is embraced in a territory that stretches nearly three miles long from the Navasota River to the south, extending past Mexia, west to the H. & T. C. Railway, a distance of nearly eight miles. This is being extended and development covers a much greater area than that. Wells are being drilled on a line practically 50 miles in length and gaps are checkered constantly with new derricks from Currie to Kosse, north and south, while in width it is being extended almost 20 miles.

The development is being done by several hundred companies and individual concerns. The big companies are becoming more interested daily, and practically every paper calls attention to an extension of acreage holdings of the greater oil organizations. North of the Navasota River the Texas Co. owns possibly 1,000 acres and the Magnolia Petroleum Co. a like amount. The Humble Oil & Refining Co. in this same undefined area owns possibly more than that. The Gulf Production Co. is drilling on acreage owned in various parts that possibly total 500 acres. Atlantic Oil Production Co. has scattered through the field over 600 acres and the Arkansas Natural Gas Co. over 500 acres. The Kirby Petroluem Co. is constantly increasing its acreage in the field and owns possibly more than 1,000 acres. The Houston Oil Co.'s holdings total in round numbers 300 acres. The E. L. Smith Oil Co. owns probably more than any other concern excepting the Humphreys interests—from 1,500 to 1,600 acres in the district between the Navasota and Mexia.

The Western Oil Fields Corporation, which originally owned the Desenberg, has over 300 acres in the field. Probably just as much acreage is held by the J. K. Hughes Oil Co., Gilliland Oil Co., New Domain Oil & Gas Co. and the Danciger Oil Co. The Woodbine Oil Co. shows on the map as owning 500 acres or better. In the 200-acre group could be placed the Ohio Fuel Oil Co., Republic Oil Co. and the Monarch Oil Co. Their holdings may even exceed this figure. The Occidental Oil Co. also owns practically that amount. Higgins Oil Co., General American Oil Co., Karner-Berry Oil Co. and scores of other companies likewise have valuable acreage on which wells are now being drilled. Some of the very responsible concerns and individuals are drilling on as low as three acres, with all the chances in the world in favor of them drilling in some of the biggest wells in the field.

Other Counties Active

While most of the excitement in oil circles still is centered around Mexia, there are important developments under way in many other sections of North Central Texas. During the previous week Stephens, Young and Callahan counties and many other districts made interesting progress. Production also shows a gain, and everybody in the oil business is feeling good. Stephens county accounted for some rather interesting developments during the week. In the northern part of the county the Texas Pacific Coal & Oil Co.'s No. 7 on the Newell tract is reported to be doing between 2,000 and 3,000 barrels from 32 feet of sand, and is by far the best completion in Stephens county for some time. Taking this well with others found during the previous week makes things look more favorable for several sections of the North Central Texas area.

Excitement still is high in the Bunger district of Young county over the discovery a week ago of the new producing horizon at around 2,600 feet. Late in the week no new wells had been drilled to this level.

Young County Production

Young county, according to statistics just compiled, at the close of October had 121 producing oil wells, and for the month the total amount of crude handled by the pipelines amounted to 229,932 barrels. The following table shows the company owning production, number of wells on each tract, with the total number of barrels produced from each tract, as follows:—

	No. of Wells.	Total Barrels.
Armstrong-Haskell Co.	1	706
Armstrong-Haskell Co.	3	1,357
Del Texas Oil Co.	1	370
Connor, Son & Co.	2	440
Connor, Son & Co.	5	7,736
Furlow & Godley	1	400
Emerick Oil Co.	6	28,614
Godley Oil Co.	15	31,140
Gulf Production Co.	1	350
Colcord & Nancy	1	200
Hedrick & Spoonts	1	6,465
Jake Hamon Estate	1	1,440
M. R. Hamphill & Co.	3	9,750
Kent Oil Interests	5	3,819
Eureka Production Co.	8	19,821
Eureka Production Co.	1	703
Eureka Production Co.	1	828
Eureka Production Co.	2	4,050
Mid Tex Petroleum Co.	3	2,185
North American Refining Co.	1	2,300
North American Refining Co.	1	405
North American Refining Co.	1	2,515
North American Refining Co.	1	505
Okla. Pet. & Gas Co.	4	6,425
Okla. Pet. & Gas Co.	34	1,535
Okla. Pet. & Gas Co.	4	6,725
Panhandle Refining Co.	14	32,695
Panhandle Refining Co.	1	607
Petrol Oil Co.	5	5,017
Roll & Tyroll	2	8,824
Roxana Petroleum Corp.	1	190
Rosell Oil Co.	1	3,724
Roxana Petroleum Corp.	4	8,420
Roxana Petroleum Corp.	1	710
Roxana Petroleum Corp.	2	155
Roxana Petroleum Corp.	1	435
Roxana Petroleum Corp.	1	195
Roxana Petroleum Corp.	1	750
Seaboard Oil & Gas Co.	54	19,030
Seaboard Oil & Gas Co.	1	1,265
Hugh Robinson	1	720
Westervelt & Noble	2	765
Texas Co.	1	951
Grand totals	121	229,932
Daily average production		7,826

Navarro County Prospects

The past week has been one of much importance to Corsicana and Navarro county in connection with development of the Corsicana-Mexia oil fields, but probably the two outstanding features were the announcement by the Magnolia Petroleum Co. that it would sink a deep test about four miles north of Corsicana, and an announcement by the Humphrey-Texas Co. that the first offset well to the big Meador well in Navarro county is drilling. The Magnolia Co., which for ten years has been drilling shallow wells with much success in Navarro county, would never consent to drill a deep well to the Woodbine sand, it being the contention that there was no deep oil sand in Navarro county. However, with the bringing in of the Meador well and the good showing the Magnolia has in its deep test, No. 1 Finch tract, in the southern part of Navarro county, no doubt it was led to the belief that deep oil underlies the teritory surrounding Corsicana.

The first deep test in what might be termed strictly Corsicana territory will be drilled on the Baum tract, just north of Corsicana. On this tract, which is known as the Oil Ridge section, the Magnolia Co. has drilled many good shallow wells. With the Magnolia Co. well under way north of Corsicana, the town is practically surrounded by deep tests and, as old-timers say, is "sitting pretty" to be one of the largest oil centers in the country.

Another important deep test is that of the Cor-Tex Oil Co., being drilled to the Trinity sand. This well is drilling below 3,600 feet. The drill will go at least 4,500 feet, or to the Trinity sand. Another announcement during the week is the spudding in of a deep test to be drilled by Byron Cheney & Co. near Cheneyborough on the T. & B. V. Railroad just south of Corsicana. Cheney owns a large tract in that spot.

Navarro County Deals

In Navarro county many deals in leases are being made. The Houston Oil Co. purchased 100 acres out of the Matthews Boren League, paying a bonus of $63,000. The Humphreys Texas Co. bought 200 acres out of the Boren League, and the Gulf Production Co. bought 85 acres, paying $12,500 and 1-24th of oil produced from the tract. The Simons Oil Co. purchased 125 acres from M. L. Bond and C. J. Green out of the Hardeman and Anderson Survey. The Atlantic Oil Producing Co. purchased a block of acreage in the James A. Johnson Survey from John C. Connor, which will be developed within a short time. Morris Frazier purchased 187 acres in the M. Fouty Survey from George B. Campbell.

The Morris Frazier well, three miles west of Richland, in Navarro county, is due for completion and is making a nice showing, according to late advice from the field. The Seay & Cranfill well, being No. 1 West tract, one and a half miles south of Richland, is drilling below 2,800 feet and has encountered a heavy gas vein.

New Pipeline for Mexia

A new eight-inch pipeline has been started by the Prairie Oil & Gas Co. from Hensley, about thirty miles north of Ranger, to the Mexia field, a distance of something like 140 miles. Storage for 1,000,000 barrels of crude will be rushed in the Mexia district at once. This is very interesting news to the operators of the field.

Late Mexia Gushers

The good work is being kept up in the Mexia field and shortly it will be a completed well each day, as many of the wells are getting to a stage where the Woodbine sand is found. The Humble Oil & Refining Co. was presented with an 11,000-barrel gusher a few days ago in its No. 1 Slaughter tract, located midway between the big gushers on the Desenberg and Nussbaum tracts. The Magnolia Petroleum Co.'s No. 2 Desenberg tract is reported at 5,000 barrels. The Humphreys Mexia Oil Co.'s No. 1 Mills tract is listed in the 11,000-barrel gusher list, while the Kirby Petroleum Co.'s No. 1 Harris tract is rated at 3,500 barrels. Any of these gushers would make the operator drilling in small well territory dance with joy.

Without these last named gushers the Mexia field was reported as producing 70,000 barrels—that is, oil that is being handled, but if the wells were all opened up to capacity that are completed and those standing in the sand ready to drill in when storage facilities are adequate, there is no telling what the production would be. Some say the production of the field would be around 150,000 barrels, while others claim that it would reach 200,000 barrels a day.

Issues Warning to Mexia

A few leaseholders in the Mexia field are subdividing their leases into small tracts and in such a shape as will prevent the location of a rig without violation of the State regulation requiring that wells must not be placed closer than 150 feet to the property lines or within 300 feet of other wells on the same lease, R. L. Hoover, deputy supervisor of the Oil and Gas Department of the Railroad Commission, said.

"The commission looks with much disfavor upon close drilling in the Mexia field," Mr. Hoover said, "as, owing to the porosity of the oil sand and the high gravity of the oil, it is unnecessary. Men who buy small tracts on which it is impossible to drill without violating the regulations do so at their own risk. Exceptions to the rules are granted only in special cases to protect vested rights, and in such cases special permits must be secured from the commission."

Wichita Falls District

Lack of water continues to hamper drilling operations throughout the Wichita Falls district, and the starting of the big drilling campaign that was expected to result from the increase in the price of crude will not be made until there have been rains to fill tanks and creeks. All the drilling that is going on is in those fortunate spots which still have some water left. Most of the Young county drilling is along the Clear Fork, in which there is still some water, but in some places in Young county salt water is being used in the boilers in the race for oil, and those who are familiar with the effect of salt water on the boilers are looking for trouble ahead.

Probably the most important completion of the week in Wichita county was the Gulf Production Co.'s No. 5 Collett tract, south of Electra. This test got the newly discovered 1,900-foot sand and is showing 100 barrels or better. Numerous shallow sand completions are reported from the Electra field. In the old Texhoma district, south of Burkburnett, the Staley Oil Co.'s No. 4 Dodson tract is swabbing around 200 barrels a day.

Due to the great amount of cleaning out, the older wells in the Northwest Extension and Burkburnett Townsite pools in the Clara district enjoyed a gain in production over the previous week.

Test in Van Zandt County

The Walker Consolidated Petroleum Co. of Dallas closed a contract with the Stone Point Oil & Gas Co. to drill a 3,500-foot test for oil in the Stone Point Community in Van Zandt county, twelve miles south of Willis Point, where the company has 7,000 acres leased up. Material will be placed on the ground at once and the contract calls for the well to be spudded in within ninety days. Much interest is being taken at Willis Point in the test, and a big barbecue is planned for the day on which operations will begin.

Much enthusiasm prevails in Kaufman county, and leases are bringing high figures. Advice from the busy town of Kaufman is that eight miles east of that city, in the Ola, Chief and Rand communities, some big lease transactions are being put through. Dr. W. A. Bishop sold leases on 300 acres for $15,000 and Marion Fox sold leases on 200 acres for $10,000. White Collins sold a lease on twenty-five acres joining the Marion Fox tract on the north for $100 an acre. Kaufman county adjoins Navarro county on the north.

Current reports are that the Magnolia Petroleum Co. has purchased eight sections of land located north of White Deer, Carson county, and near the famous No. 2 well of the Gulf Production Co., reported to be good for around 500 barrels. Some say the land is to be used as a tank farm by the big company, but the acreage is altogether too extensive for that purpose and will eventually be developed for oil by the new owners.

Doubles Tank Farm Area

The Magnolia Petroleum Co. thinks so well of the territory in the Mexia field of Limestone, Navarro, Freestone and other counties that it has purchased somewhat more than 200 additional acres adjoining its big tank farm a mile north of Groesbeck, and will double the size of the farm. Some short time ago this company purchased its first 200 acres for the installing of a tank farm, and soon realized that the acreage was not sufficient for the number of mammoth storage tanks that would be required to handle production in the gusher field, and doubled the acreage, and oil is being run into the big storage tanks as soon as they are completed. The pumping facilities are also being doubled, and work on the connecting of the main trunk pipeline of the company, which lies about fifteen miles east of Groesbeck, is being rushed through.

Production for the Week

A slight gain was made in the average production of the North Central Texas fields during the week, which production does not include the gushers of the Mexia district. Slight rains have prevailed over the area of Texas, which will help along materially in development work, as the scarcity of water has held back the work that would have been done had there been a sufficient amount of water for drilling purposes. Better times are in store for the fields, and from now on as long as the water supply lasts the drill will be rushed.

During the week the daily average production of the North Central Texas field proper amounted to 139,968 barrels against 138,466 barrels for the previous week, a daily increase of 1,502 barrels.

The week's daily average of the Burkburnett field was 41,116 barrels, against 39,185 barrels for the previous week, a daily gain of 1,931 barrels. Eastland county for the week average 13,625 barrels, and for the previous week an average of 14,100 barrels, a daily loss of 475 barrels. Stephens county averaged 54,175 barrels for the week, and the previous average was 53,825 barrels, a daily increase of 350 barrels. Comanche county's average for the week was 5,775 barrels, against 5,535 barrels for the week previous, a daily gain of 240 barrels. Electra field averaged 10,829 barrels, against 11,116 barrels for the previous week, a daily loss of 287 barrels. Iowa Park field for the week averaged 3,263 barrels, and for the previous week 3,250 barrels, a daily gain of 13 barrels.

Young county for the week averaged 7,750 barrels and for the week previous 7,850 barrels, a daily loss of 100 barrels. Strawn field averaged for the week 725 barrels, against 650 barrels for the previous week, a daily gain of 75 barrels. Petrolia field averaged 300 barrels for the week, against 430 barrels for the previous week, a daily loss of 130 barrels. Brown county averaged 425 barrels for the week, against 450 barrels for the previous week, a daily loss of 25 barrels. Holliday field for the week averaged 1,760 barrels and for the previous week 1,850 barrels, a daily loss of 90 barrels. No change was made in the average for the past two weeks in Coleman and Shackelford counties, as Coleman county remains at 100 barrels a day and Shackelford county at 125 barrels.

Daily Average Figures

Following will be found the daily average production by counties and fields, in barrels, as follows:—

Burkburnett field, 41,116 barrels; Eastland county, 13,625 barrels; Stephens county, 54,175 barrels; Comanche county, 5,775 barrels; Electra field, 10,829 barrels; Iowa Park field, 3,263 barrels; Young county, 7,750 barrels; Strawn field, 725 barrels; Petrolia field, 300 barrels; Brown county, 425 barrels; Holliday field, 1,760 barrels; Coleman county, 100 barrels; Shackelford county, 125 barrels.

Distribution of Production

The above production was distributed by counties and fields, showing company handling production and the amount of production handled, as follows:—

BURKBURNETT FIELD.—Texas Co., 2,807 barrels; Magnolia Petroleum Co., 2,800 barrels; Kansas-Gulf Oil Co., 2,125 barrels; Gulf Production Co., 1,600 barrels; Humble Oil & Refining Co., 1,200 barrels; Oklahoma Petroleum & Gasoline Co., 1,175 barrels; McMahon Oil Co., 1,100 barrels; Panhandle Refining Co., 1,100 barrels; American Refining Co., 1,100 barrels; Middle States Oil Corp., 1,000 barrels; Weber interests, 859 barrels; W. G. Skelly Oil Co., 750 barrels; Livingstone Oil Corporation, 725 barrels; Texhoma Oil & Refining Co., 725 barrels; Invaders Oil Co., 600 barrels; Ryan Petroleum Co., 650 barrels; Margay Drilling Co., 550 barrels; C. F. Noble Oil & Gas Co., 450 barrels; White Oil Corp., 91 barrels; miscellaneous, 19,709 barrels; total, 41,116 barrels.

EASTLAND COUNTY.—Texas Pacific Coal & Oil Co., 1,500 barrels; Sinclair Consolidated Oil Co., 1,275 barrels; Prairie Oil & Gas Co., 1,150 barrels; Gulf Production Co., 600 barrels; Magnolia Petroleum Co., 525 barrels; Texas Co., 500 barrels; Humble Oil & Refining Co., 150 barrels; Fensland Oil Co., 50 barrels; White Oil Corp., 25 barrels; miscellaneous, 7,850 barrels; total, 13,625 barrels.

STEPHENS COUNTY.—Texas Co., 5,650 barrels; Mid-Kansas Oil & Gas Co., 4,350 barrels; Humble Oil & Refining Co., 3,875 barrels; Gulf Production Co., 3,950 barrels; Texas Pacific Coal & Oil Co., 3,350 barrels; Magnolia Petroleum Co., 1,800 barrels; Sun Co., 1,200 barrels; Fensland Oil Co., 1,150 barrels; Sinclair Consolidated Oil Co., 750 barrels; White Oil Corporation, 604 barrels; miscellaneous, 23,796 barrels; total, 54,175 barrels.

COMANCHE COUNTY.—Magnolia Petroleum Co., 1,050 barrels; Gulf Production Co., 600 barrels; Mid-Kansas Oil & Gas Co., 350 barrels; Prairie Oil & Gas Co., 175 barrels; Sinclair Consolidated Oil Co., 125 barrels; miscellaneous, 3,475 barrels; total, 5,775 barrels.

ELECTRA FIELD.—Texas Co., 3,754 barrels; Magnolia Petroleum Co., 3,750 barrels; Gulf Production Co., 650 barrels; Middle States Oil Corp., 525 barrels; Panhandle Refining Co., 75 barrels; miscellaneous, 2,075 barrels; total, 10,829 barrels.

IOWA PARK FIELD.—Gulf Production Co., 350 barrels; Texhoma Oil & Refining Co., 82 barrels; Walkers Consolidated Oil Co., 81 barrels; miscellaneous, 2,750 barrels; total, 3,263 barrels.

YOUNG COUNTY.—Panhandle Refining Co., 1,050 barrels; Middle States Oil Corp., 1,000 barrels; Oklahoma Petroleum & Gasoline Co., 500 barrels; Gulf Production Co., 150 barrels; miscellaneous, 5,050 barrels; total, 7,750 barrels.

STRAWN FIELD.—Texas Pacific Coal & Oil Co., 375 barrels; miscellaneous, 350 barrels; total, 725 barrels.

PETROLIA FIELD.—Texas Co., 125 barrels; miscellaneous, 175 barrels; total, 300 barrels.

BROWN COUNTY.—Miscellaneous, 425 barrels.

HOLLIDAY FIELD.—Texhoma Oil & Refining Co., 1,285 barrels; miscellaneous, 475 barrels; total, 1,760 barrels.

COLEMAN COUNTY.—Miscellaneous, 100 barrels.

SHACKELFORD COUNTY.—Texas Co., 125 barrels.

New Wells

The week in review shows but a slight decrease in the number of wells finished but a heavy increase in the new initial production of the field, due to the big gushers that were brought in and reported from the Mexia field, making the initial production for the week from the North Central Texas field by far the largest in many months. Rains have at last shown up at the close of the week, and it now looks as though the drill would be rushed in all quarters. The week shows 38 wells completed, with 14 dry holes, one gas well and a new initial production of 68,710 barrels, a decrease of one in wells finished and 9 more dry holes, with no change in the number of gas wells, but in new initial production the increase over the previous week's report is 44,758 barrels.

The wells for the week were distributed by counties and fields as follows:—

Field.	Comp.	Prod.	Gas.	Dry.
Burkburnett field	3	5	..	2
Stephens county	14	4,050	..	9
Electra field	8	405	..	3
Mexia field	8	63,100	..	..
Young county	3	950	..	..
Texhoma field	1	200	..	..
Panola county	1	...	1	..
Totals	38	68,710	1	14
Previous week	39	23,952	1	5
Difference	1	44,758	..	9

The above wells, excepting the gas wells, showing the name of owner, tract on which located, well number and production in each county and field for the week were as follows:—

BURKBURNETT FIELD.—Texhoma Oil & Refining Co., No. 3 Wexford tract, dry; Clare Oil Co., No. 1 Mortens tract, 5 barrels; Franklin Oil Co., No. 4 Dodson tract, dry.

STEPHENS COUNTY.—Prairie Oil & Gas Co., No. 3 Ware tract, 5 barrels; Texas Pacific Coal & Oil Co., No. 7 Newell tract, 3,000 barrels; Snowden-McSweeney Oil Co., No. 10 Ackers tract, 500 barrels; Prairie Oil & Gas Co., No. "C" 4 C. Veale tract, 300 barrels; Magnolia Petroleum Co., No. 2 Guest tract, 200 barrels; Townsend Oil Co., No. 1 Powers tract, dry; Sommers & Ross, No. 1 State land, dry; Pamona Oil Co., No. 1 Hefner tract, dry; New Domain Oil & Gas Co., No. 1 Johnson tract, dry; Ivan National Oil Syndicate, No. 1 Peck tract, dry; Hofmier & Deegan, No. 1 Curry tract, dry; Broderick Oil Co., No. 2 Rogers tract, dry; Banner Unit Syndicate, No. 1 Sloan tract, dry; Balboa Oil Co., No. 1 Houston tract, dry.

ELECTRA FIELD.—Planet Petroleum Co., No. 7 Burnett tract, 250 barrels; Arko Trust Co., No. 1 Waggoner tract, dry; Magnolia Petroleum Co., No. 15 Brown-Cross tract, dry; Virginia Oil Co., No. 12 Burnett tract, dry; Simms Oil Co., No. 5 Burnett tract, 25 barrels; Hill & Roberts, No. 1 Burnett tract, dry; Dulaney Brothers, No. 4 Burnett tract, 20 barrels; Gulf Production Co., No. 5 Collett tract, 100 barrels.

MEXIA FIELD.—Magnolia Petroleum Co., No. 2 Desenberg tract, 5,000 barrels; same, No. 1 Thompson tract, 10,000 barrels; Humble Oil & Refining Co., No. 1 Slaughter tract, 10,000 barrels; Humphreys-Mexia Oil Co., No. 2 Adamson tract, 2,500 barrels; same, No. 1 Mills tract, 11,000 barrels; same, No. 1 Mrs. A. H. Gamble tract, 600 barrels; same, No. 1 Winn tract, 500 barrels; Kirby Petroleum Co., No. 1 Harris tract, 3,500 barrels.

YOUNG COUNTY.—Godley Oil Co., No. 1 Owens tract, 100 barrels; Oklahoma Petroleum & Gasoline Co., No. 5 McCluskey tract, 50 barrels; North American Oil Co., No. 1 B. F Scott tract, 900 barrels.

TEXHOMA FIELD.—Staley Oil Co., No. 4 Dodson tract, 200 barrels.

Added Too Many Figures

The world was astounded when the report came out that the Magnolia Petroleum Co. had paid $6,000,000 for the lease on the Mills 19-acre tract in the Mexia field, with one well reported at 10,000 barrels a day. The price paid the J. K. Hughes Oil Co. for this tract is $600,000, and some one added the extra figures, making it millions instead of thousands. One-half the price was paid in cash and the other half comes from the production of the crude from the well.

The Gulf Production Co. is reported to have closed a deal for a 40-acre lease, being a part of the Hackney tract, northwest of Wortham, for a consideration of $450 an acre. The lease was sold by Marshall Spoonts of the Oil Operators' Trust, and in the north end of the Mexia district.

The U. S. Mex Petroleum Co. has purchased the Fish Pond well, with a lease on 48 acres, for a price of $700,000. One-third of this sum is to be paid in cash and the balance to come from one-half the production from the lease until paid for. The Fish Pond well was drilled in recently by U. M. Simon & Co. of Fort Worth upon a 10-acre tract, and the additional acreage to make up the 48 acres, owned by Frank M. Smith & Co., were put into the deal. The Fish Pond well was the sensation of the field when brought in. It came in unexpectedly and with the drill in only a few feet in the first sand, and made better than 2,000 barrels daily and is still making 1,500 barrels, but can be drilled deeper with prospects of increasing its production.

Less than two weeks ago the U. S. Mex Petroleum Co. bought 70 acres out of the Liles tract from the Occidental Oil Co. for a consideration of $1,100,000. A few days later it purchased 51 acres, which will be used for the construction of storage tanks. This company's investments so far the past few weeks in the Mexia field is above $2,000,000. This is a New York company and is headed by its president, E. Dean Fuller, Morris Frankel, Frank Frankel and George Frankel, New York bankers.

Tampico Shipments in October 1,000,000 Barrels Less Than September

WASHINGTON, Dec. 8, 1921.

Petroleum shipments from Tampico fields in October were in excess of 16,165,000 barrels, consular officials at Tampico, Mexico, today reported to the Department of Commerce. The October shipments, the report says, were well up to the average for the year, although more than 1,000,000 barrels less than the September total.

Mexican oil shippers complain of a restricted market for oil in the United States. One of the largest shipping companies was declared to have ten big tank steamers tied up in Galveston and New Orleans because of market conditions in this country.

WYOMING-MONTANA

Several Good Wells Completed in Salt Creek Field—Entire Production of That District to Be Pumped Into Pipelines

CASPER, Wyo., Dec. 2, 1921.

Beginning yesterday, December 1, the entire production of the Salt Creek wells will be pumped into the lines for market for a period of fifteen days. While the official statement of the Midwest officials is to the effect that the capacity runs are for the purpose of determining production with a view to future operating, it has been learned that the Casper plant of the Standard Oil Co. will furnish over 2,000,000 barrels of gasoline for export, beginning January 1. A report to this effect was current a month ago, but nothing definite was given out until the papers were signed this week. The Casper plant will be run to its limit until the fifteen-day production has been treated. After that both pipeline runs and refinery operations will slack off, but the settled figure will be in advance of present runs. During the fifteen-day period the field will be divided into two sections; the wells from each section will be pumped to capacity, and the last three days' production will be used as a basis for future pro-rating regulations.

Refinery Notes

The Standard Oil Co. is ready to pour cement at its new refining plant at Glenrock. Excavation work and the building of forms were completed last week. The original installation will consist of eight pressure stills to handle the gas oil from the Mutual (Elk Basin) plant at that point.

The construction of ten stills at the Standard plant at Laramie, begun lats summer, was completed this week. Five of the new stills went into operation last week, and the remainder made their initial runs this week. The completion of the work almost doubles the capacity of the Standard plant, which was built to supplement the Midwest.

The independent refineries at Winnett, Mont., are said to be paying a premium of $1.25 over the posted price of Cat Creek oil. This would give the producers in the field a figure well over $3 per barrel for their crude.

Pipeline Notes

The 67-mile pipeline from the Elk Basin field to Billings, laid by the Ohio Oil Co. and Illinois Pipeline Co., was completed on November 22. Actual work on the line was begun on October 19, and all line laying records have been broken. The gas was not turned into the line on the day of completion, as the town lines had to be tested out, but the actual construction work was done on the date given.

All the river crossings on the Ferris-Casper line of the Midwest Refining Co. and the Producers and Refiners' Corporation are in, and at last reports one 3½ miles of 12-inch pipe remained to be laid in order to complete the line as far as the Poison Spider oil field, 20 miles from Casper. The ditch is complete and the pipe strung for the rest of the line, and completion of the line by the middle of December is expected.

Rawlins citizens are sponsors for a report that the gas supply for the line will be accepted on a pro rata basis from all producing gas wells in the district tapped by the 90-mile line. The line will be capable of handling 35,000,000 feet daily, which is only about one-sixth of the present gas production of the district, to say nothing of a number of wells now drilling which are sure to be producers.

The line from the Sand Draw field to Liverton is complete and the gas is in use in Riverton. Two subsidiary companies of the Producers and Refiners' were incorporated two weeks ago to handle the gas—the Sand Draw Pipeline Co., which will transport it to the city limits and the Fremont Gas Co., which will market it in town.

The Illinois Pipeline Co. is lowering its pipeline from the Lost Soldier field to Fort Steel. The Lost Soldier oil is heavy, and considerable trouble has been experienced in shipping through the line in cold weather. Burying the line deeper is expected to do away with much of this difficulty.

Completions

A number of wells in the Salt Creek field appear as completed in the reports filed by the companies at the end of November. The Midwest Refining Co. reports a 2,000-barrel well on Wyoming Oil Field Co.'s holdings in section 25-40-79; the Salt Creek Consolidated Oil Co. has two new producers, one on section 11-39-79 and the other on section 27-40-79; the E. T. Williams Co. completed a 150-barrel well on section 11-39-79, and the Elk Basin Consolidated has a 50-barrel well on section 8-39-78. The Western States Oil & Land Co. has completed the so-called Rainbow well on section 5-39-78, but realized only a 50-barrel production. The well will be shot. The Rainbow well is located in the faulted section in the southeastern part of the field, where a very good or a very poor production may be realized.

The Utah Oil & Refining Co. has abandoned its well at Bull Springs, in the Ferris district. The Ed Goode well on section 29 at Fort Steel, south of the Ferris field, has also been abandoned. The Wexico Wyoming Oil Co. has abandoned its Owl Creek test in the Big Horn Basin. The Ohio Oil Co. struck water at 2,250 feet in its well on the Deline lease at Fort Steel, and will abandon the hole. The same company completed a 400-barrel producer on the Alva Dixon lease, in section 34-20-78, in the Rock River field, and a 250-barrel well on the Harrison and Cooper holdings in the west half of section 11-19-78, in the same district. In the Osage field the Producers and Refiners' Corporation has a 50-barrel pumper on section 36-46-64. Knapp et al. have completed a shallow sand well in the southern part of the same field.

Field Notes

The Osage district in Weston county, which has been quiet for a year, is showing more activity than at any time during the summer. New operations noted in the field are as follows:—

Section 18-46-63, Osage Trust Co., drilling on well No. 2; section 21-46-63 Osage Upton Oil Co., spudded in on a new well; section 17-46-63, Penn Petroleum Co. No. 5, drilling below 500 feet; section 28-46-64, Roy Tarrant, rig up; Dakoming Oil Co., starting new shallow hole on section 5-46-63; Wyoming Oil Trust Co., preparing for deeper drilling on section 1-46-64; Goherty interests, No. 2 drilling on section 15-46-63; Independent Producers spudded in on section 5-46-63; the Nye Petroleum Co. is cleaning out several wells on section 36-46-63, which will be put on the pump and connected with the pipeline.

The Union Oil Co. of California is moving material for well No. 3 on to the Rohiff lease, in the southwest quarter of section 32-36-65, in the Lance Creek field. The Union completed a 50-barrel well on this lease in October, production of which was afterwards increased to 80 barrels daily.

The Ohio Oil Co., which recently took over the Oregon Basin field in the Big Horn Basin, has also taken up extensive leases on the Mercer dome, eighteen miles east of Basin. A rig will be moved in at once for a test. The Union Oil Co. of California has contracted to drill a well on Cottonwood Creek, near Cody, on holdings of the Park Oil Syndicate, a local organization. The deep test of the Transark Oil & Gas Co. near Frannie is down over 4,000 feet, an unusually deep hole for the section of the State. The well is located on section 30-57-98, on the Polecat dome. The well is owned jointly by the Transcontinental Oil Co. and the Arkansas Natural Gas Co. A well drilled on the same dome several years ago by Daniel Danker, of Boston, struck considerable gas, and a gas sand was encountered in the Transark well at 2,800 feet.

New rigs are still going up in the Salt Creek field; the promise of greater opportunity to market production has stimulated activity in the big field. The Chappell Oil Co. has about completed a new rig on holdings of the Coastal Plains Oil Co. on section 7-39-78. The Royalty & Producers' well No. 3, on section 16-39-78, the best well in the southeastern part of the field, was opened for a test on Thanksgiving Day and made 700 barrels in three hours. The well is considered capable of producing about 1,000 barrels daily, but has been pinched in on account of pro-rating.

Fremont county tests are being rushed on account of cold weather coming in, and several completions are expected before winter forces a shut down. Among the newer operators is the Wyoming-Missouri Development Co., which is down 500 feet with a test well on Bridger Creek, near Lysite.

The Western Land & Operating Co. is making good progress in the Bates Park region, southwest of Casper. Several tests are going down in this region, which lies north of the Bolton Creek development and east of the old Bates Hole location.

The Centennial Valley Oil Co. will resume drilling on the Goshen dome in Platte county, according to reports from that district. This well struck water at 2,300 feet, and was reported abandoned some time ago. The well is said to be gassing heavily through the water, and another attempt will be made to develop something good.

A new test will be drilled near Saratoga, in the southern part of the State. The new venture has been credited to the Southern Petroleum Co. of Texas, the Southwest Oil Co., and the Southwestern Petroleum Co., and the writer has been unable to ascertain the true operator. A well was drilled several years ago in the Saratoga district, farther east. The Annabelle Wyoming Oil Co. has about completed the standard rig which will replace a National machine at its Pickett Lake well, and drilling will be under way shortly. The Ohio Oil Co. has erected a new rig at the O'Brien Springs well to replace the burned one, and the well is drilling again.

In the southwestern corner of the State several wells are drilling, in spite of weather conditions. The Union Consolidated Oil Co.'s well on the Corder 12 twelve miles from Big Piney, is within 50 feet of the sand. This well was begun a year or two ago by the Big Piney Oil & Refining Co. South of the Big Piney field the Wyoming Illinois Oil & Shale Co. is drilling in blue shale at 2,000 feet on the Carter dome in Uinta county. The well is supposed to be nearing the sand.

Montana

The report that the Burlington Railroad would build a spur and a pipeline to the Soap Creek field could not be confirmed locally. The report has persisted for several months, ever since the opening of the second big well by the Western States Oil & Land Co. The Soap Creek field lies about 40 miles south of Hardin, Mont., and 30 miles west of Lodge Grass. According to the report circulated this week, the railroad spur would extend from Hardin to a point ten miles north of the field, where the pipeline would begin. The Western States has completed four wells in the field, with a total production of about 3,000 barrels, probably more. Well No. 3 was shot last week, and the shell exploded prematurely, damaging the hole. The operators hope to save the well, but the situation will take expert handling.

The only other well completed to date in the Soap Creek field is the Dox well, on section 2-7-32, but this is in danger of being drowned out by water. The Winne and Richards well on section 21 has encountered considerable water above the Tensleep sand. The Elder and Ladow well is shut down, the rig having collapsed while pulling casing. The Thermopolis Cat Creek well on section 2-7-32, and the Rice well on section 4-7-32, are both fishing. The field lies in townships 6 and 7, range 32, in Big Horn county. The oil from the Soap Creek wells is a black crude, with a low gravity and an asphalt base. An analysis of the oil showed 8 per cent. gasoline content and 12 per cent. kerosene. The oil is fairly rich in lubricants, but can not be considered a high-grade oil.

Montana wildcat operations have been badly hampered the last week or so by snow. Few new operations are noted, and only routine work is reported both from the Cat Creek field and in the wildcat districts. The Standard Oil Co. of California is building two camps and getting ready to drill two tests in the Armells district. One will be located about 2½ miles southeast of Armells station, the other six miles west of the first, on Deer Creek. The Wayne Petroleum Co. will skid its rig and start a third role on Button Butte, southwest of Winnett. The Wayne lost two holes before completions, and also two strings of tools. The Keystone Oil Co. is setting up a drilling machine on the Berg ranch, 3 miles from Columbus, Mont. The Kansas Montana well on the Winifred dome, in Fergus county, will be put to drilling again some time this month, according to officials of the company. The well has been shut down since last summer on account of a money shortage. The well has been drilling two years and is down 2,850 feet.

KANSAS

Three New Pools Opened in Different Sections of the Oil District—Wildcat Work Very Active All Over State

WICHITA, Kans., Dec. 5, 1921.

Wildcat operations over the State have been active during the past week, with indications pointing to the fact that at least two or three new pools have been opened in different sections of the oil district.

The Mission Oil Co., on the Thrall farm, in the southeast corner of section 29-23-10, Greenwood county, is reported to have brought in a well good for from 50 to 75 barrels, as it stands. According to reports the sand was found last week, but the test shut down while the operators picked up all the available acreage in the neighborhood of the well. According to the report sand was topped at 2,290 feet, and drilling stopped 23 feet in. There is said to have been 300 feet of oil standing in the hole at the time it was shut down. It later filled the hole and slopped over the top.

The oil is said to be of high gravity, resembling that found in the Teter pool. There is said to be no water in the hole, although the sand showed lighter when drilling was stopped. The well is owned by Albert Jones, E. W. Goebel and associates. Clarence E. Roth drilled the well in, and also owns an interest in the new wildcat. The company owns around 5,000 acres in the block. A number of the larger companies, including the Empire Gas & Fuel Co., and the Mid-Kansas Oil Co.

The second wildcat in Greenwood county that is showing for a producer is the test of Willard & Scott on the Grundy farm, in the southeast corner of the southwest quarter of the northwest quarter of 7-27-11. Sand was hit at 1,895 feet, and scouts say the well looks like a commercial producer. With the bit only six inches in the sand oil began rising in the hole, and in half an hour rose to 100 feet, when the test was shut down. It will be drilled in today, according to the report.

The well is an offset to the Essick, which was brought in about two months ago, and the sand is said to be the same as that found in the Essick. The Essick well is estimated good for 125 barrels daily production. The location is 12 miles south of Eureka, and one and a half miles west of Climax. The new well, while not exactly a wildcat, is the second producer brought in in the district and is important in helping to establish the fact that a real oil pool exists in the Essick district. The well is owned by Jess Willard and Guy E. Scott, who own a large acreage around the new well.

Over Top of Derrick

In Cowley county the United Petroleum Co., on the Eastman ranch, in section 7-31-16, which hit a heavy gas sand a week ago, was shot last Tuesday, and is said to be a commercial producer, although the amount of production is not yet known. When the sand was shot oil, gas and sediment shot 20 feet over the top of the derrick, and kept shooting up at intervals of 10 to 15 minutes for over two hours. When the head blew off it began flowing, making around 35 barrels a day. There is said to be some water showing in the oil. Scouts say that when the hole is cleaned out and the well put on the swab it will make a commercial producer. Sand was found at 2,710 feet, and drilled in 28 feet before being shot.

The new well is a rank wildcat, and should it prove a commercial well will open an entirely new territory to be drilled out. It is five miles south of the main Fox-Bush field, and the sand is said to be similar to that found in the Fox-Bush wells. It is between production in the Fox-Bush field to the north, and the big Osage production to the south. There is a large territory surrounding the well, and if it comes up to expectations in production, a big drilling campaign is expected to start in a short time.

Two important wildcats have just started in the Kansas fields, both of which will be watched with more than ordinary interest. In southwest Chase county, William Mercer, who owns a 4,000-acre block, which is owned and leased by himself, has spudded in and is now drilling. The location is in section 7-22-7, and the structural conditions are said to be similar to that of the Urchel district, which is nine miles to the west. The location is on a ledge 30 miles in length and 14 miles wide, on which there has never been a test drilled. It is 11 miles east of the Peabody and on a direct line between the Urchel and Teter pools. There is a gas field 14 miles north at Elmdale.

Another important wildcat which is just starting is that of Wiggins & Holmes, Tulsa wildcatters, who are starting two tests on a block of acreage four and a half miles south of the Gridley extension in Greenwood county. Rig timbers are on the ground for the first test, and timbers will be hauled out for the second test the first of the week. The location for the first test is in the center of the east line of the northwest quarter of 24-25-13, and the other is in the southeast corner of the southwest quarter of 26-25-13.

Important Test

An important test, which if it proves a producer will be an extension to the Weaver pool, in Butler county, to the north, was spudded the first of last week by R. W. Cole and H. O. Neff, on the Yates farm, in the southwest corner of the southeast quarter of 36-27-5. This test has created a new interest in southeast Butler, and scouts are predicting that the north extension of the Fox-Bush field will not only connect with the Weaver, but that production will continue for some distance to the north.

The largest activity in new work for the past week is possibly in the Climax district of Greenwood county. The Atlantic Oil & Producing Corporation on the Wygle farm, in the northeast of the southeast of the southwest quarter of 12-27-10, is spudding. Faulders and associates are rigged up and ready to spud on the Lee farm, in the southeast of the southwest quarter of 18-27-11. Lawson and associates are moving in a rig for a test on the Essick farm, in the southwest corner of the northeast of the northeast of 12-27-10. Grieves and associates are reported rigging up on the Rock Island in the southeast of the northwest of the southeast of 6-27-11. Willard & Scott have arranged to start another test in 9-27-11, two miles east of the Essick well, and will start out rig timbers the first of the week.

In the Virgil district Gillespie and associates are reported rigged up and ready to go on the Gribblin farm in 30-23-13. The Florence Oil Co. is reported starting another test on the Schindler farm in section 16-23-13. Brookmier and associates have the rig completed on the Thrall farm in section 7-24-12.

In Kingman county the wildcat test of S. J. Haynes on the Gabrel farm in the southwest quarter of 34-27-7 is reported on top of the caprock, which was struck at 2,576 feet. According to reports the 5-inch casing will be set immediately and the test drilled in the first of the week. The test on the Rayl farm, four miles from Kingman, which hit a good gas flow two weeks ago, is reported good for over a million and a half cubic feet daily, and will possibly be used to supply fuel for the city of Kingman.

In the north extension of the Fox-Bush field the Sterling Oil Co. on the Speeding farm, in the southwest quarter of the west half of the southwest quarter of 25-28-5, hit the sand at 2,730 feet, and with the bit only a few feet in, have a hole full of oil and a well estimated good for around 150 to 200 barrels. In the same field the Derby Oil Co. on the Houston-Brooks land, in the southwest corner of the west half of the southwest quarter of 13-28-5, have set the 6-inch casing at 2,435 feet, and is drilling ahead at around 2,530 feet. The test is expecting to hit the sand at any time.

This is the most important test now drilling in this field. It is a quarter of a mile east of the Craig well, and should it come in a producer it will prove up the territory to the east and start a heavy drilling campaign in this direction. A large amount of new work is starting in the field. Johnson and Callahan have completed the derrick in the southeast corner of the west half of the southeast quarter of 14-28-5, on the Crawley. White Eagle on the Crawley, in the southwest corner of the west half of 23-28-5, is stringing tools. S. & S. is building the rig for No. 3. Same company is building the rig for a test on the Craig, in the southeast corner of the east half of the southeast quarter of 23-28-5. Same is building the rig for a test in the southwest corner of the southwest quarter of 24-28-5. Johnson & Callahan are building the rig for a test on the Molter, in the northeast corner of the northeast quarter of 26-28-5.

Small Producer Found

In the Lucas district the Canadian-Kansas on the Barnhill, in the south half of the northeast quarter of 12-27-7, is showing for a small producer. Sand was tapped at 2,276 feet and the hole filled up over night with 700 feet of fluid, said to be about one-half water and one-half oil. It is believed that the water is coming from the last foot of sand, and it is said that the test will be plugged back to shut off the water and the sand shot, when scouts believe it will make a small commercial well. The new well of John Herron and associates in lot 7, section 31-26-8, was shot Thursday, and according to reports the production has been double. The well is now said to be making around 200 barrels of oil daily, with no water showing in the oil. The well is northwest of the Lucas well, which opened up the field, and proves that the big production is running to the northwest.

The Florence district, which has been shut down since the first of the year, is showing signs of a new life, and the indications are that the district will soon be running in full blast again. The Carter Oil Co. on the Alex. Louie No. 2, in the northwest corner of the west half of the southwest quarter of 20-21-5, has the derrick up and the contract let for drilling the test. According to reports it will spud within the next two weeks. A test is soon to be started in the southwest quarter of section 11-21-4, approximately a mile west of the Florence pool, by the Phillips Petroleum Co. It will be spudded about the first of the year, according to the report. Same company is reported to have made a location in the west half of the northwest quarter of section 28-21-5, on the Savage farm. Jim Davis and associates are reported to have made a location in the west half of the northwest quarter of 28-21-5, and will start operations as soon as the rig can be erected and the tools strung.

S. J. Haynes is arranging to start a test at once on the Osgood farm, in the northwest corner of the north half of 31-21-5. This is an important test, as it is one and three-quarter miles southwest of the Florence pool. The derrick was built some time ago, but operations delayed on account of the big slump which occurred the first of the year.

ARKANSAS

Twenty-one Wells Completed with an Initial Production of 14,340 Barrels

EL DORADO, Ark., Dec. 5, 1921.

Another busy week has developed in the El-Dorado field of Union county, Ark., there being some very fine producers brought in in many parts of the field, the average production being about the same as previous weeks. There is no doubt in the minds of the oil trade that, outside of the Mexia wonder field of Texas, the El Dorado field is attracting more attention than any other, but the operators here do not class their field with Mexia, but think they have the next best thing to develop outside of Mexia.

The fact must not be overlooked that there still remains a wide strip of territory to the south of the El Dorado pool proper, known as the Cates pool, that is developing some very remarkable wells. What will be found still south of the Cates pool remains unknown, although the average oil man looks for some wonderful producing wells between the Cates pool and the Louisiana line, where there is a strip of territory close to six miles that has not been given anywhere near a fair test as yet. New wells have extended the Cates pool at least a mile to the south of the original well of the pool, and those that have been drilled have proven productive. It is on this strip of territory that all eyes are focused at this time, and some of the leases have already got into the market and command a high figure.

There is quite a distance between the El Dorado pool proper and the Cates pool, but this wide scope of terrirtory is being tested in such manner that the two pools are getting close to each other as new producing wells are being brought in. The Cates pool has been extended a full mile from the discovery well of the pool toward the El Dorado pool. The Humble Oil & Refining Co.'s test on the Carrol tract, section 29-18-15, that came in a gas well with a volume of 8,000,000 cubic feet, has, according to reports, drilled itself in and is shooting oil out at the rate of 4,000 barrels or better a day, and adding a vast area of territory toward the El Dorado field from the Cates pool.

Another important completion is that of the Gulf Refining Co., on the Thurikell tract, also in section 29-18-15, at better than 1,000 barrels. This well extends the producing area a good mile and opens up hundreds of acres of rich-looking oil territory. In the reliable section 33-18-15 are some of the good wells of Union county, which are in the same section as the discovery well on the Cates tract in the Cates pool. The G. S. & G. Oil Corporation has added another good well to its number in section 29, in No. 3 on the Cates tract, that is estimated as good for about 2,500 barrels. This makes sections 4, 33 and 29 in the Cates pool look as productive as the famous section 17 in the old El Dorado district.

Another important development is located in the northeastern part of the limits of El Dorado. This is the Union County Oil Corporation's well on the Dumas tract in the southwestern part of section 20-17-15. This well was drilled shortly after the Bussey well was drilled in, and oil was only bringing 40 cents a barrel. The well not showing good enough to make an effort to get the oil from it, was given up for the time being as a worthless venture. The advance in the price of crude jostled the owners and they concluded to go back and see if the well was really of any value. The tubing and rods were run into the

hole and connected on the beam and started pumping. This well is now reported doing 300 barrels a day of oil that brings $1.75 a barrel and the owners are pleased to know that they made a test of what they thought was practically of no value.

The Bussey-Mitchell interests, who sold 75 per cent. of their 60-acre lease on the Armstrong tract in section 31-17-15 to the Southern Oil Land Co., retaining a one-fourth overriding royalty, have sold their one-fourth interest to the same company for $100,000, and the money has already been turned over to the sellers.

Several small deals were closed during the week in the new south Cates pool, including acreage and royalty sales. One particular tract for which the present owner paid $350 three weeks ago could have been turned for more than $2,000 an acre. The present owner, a New York operator, did not sell, but will drill several wells on the tract, which is well located for production.

Several important tests are drilling that will show whether or not the territory westward from the El Dorado field is to become a part of the great field. The developing of production in section 36-18-15, 400 barrels of oil and 4,000,000 cubic feet of gas, coupled with the fact that the Standard Oil Co. of Louisiana has a well drilling in section 3-18-16 and a location in section 4-17-16, and the Magnolia Petroleum Co. is drilling in section 27-17-16, is directed the attention of operators to the territory to the westward. Numerous gassers have been developed in this western section, but operators contend that from locations now made it is almost certain good oil production will be obtained.

Sections 33-18-15 and 4-19-15 are fast becoming a forest of huge oil derricks. This is in and around Cates pool, and it is estimated that there are between 40 and 50 drilling wells, rigs and locations within a radius of two miles east and west and two miles north toward the El Dorado field and two miles south toward the Louisiana State line.

Week's Completions

During the week a total of 21 wells were completed in the El Dorado-Cates pools of Union county, Arkansas, with a new initial production of 14,340 barrels, and were as follows:—

Enfisco Oil Corporation, No. 4 Pickering tract, section 17-18-15, estimated better than 1,000 barrels at a depth of 2,134 feet.

Boyle & Co., No. 1 Greenlee tract, section 33-18-15, estimated at more than 1,600 barrels at the usual depth in the Cates pool.

Kirksey Oil Co., No. 3 Kirksey tract, section 24-17-16, estimated at 100 barrels at 2,192 feet.

J. H. West, No. 1 Garrett tract, section 4-19-15, estimated at 400 barrels at a depth of 2,190 feet.

Carnahan-Steller Interests, No. 5 Cates tract, section 33-18-15, estimated at 1,800 barrels at a depth of 2,177 feet. Same, No. 6 Cates tract, same section, flowing 600 barrels at 2,187 feet, but not as yet cleaned out.

Jimmie Cox Oil Co., No. 3 Snowden tract, section 20-18-15, estimated at 240 barrels, at 2,156 feet.

Humble Oil & Refining Co., No. 1 Carroll tract, section 29-18-15, and between the El Dorado field proper and the Cates pool, estimated at 4,000 barrels, and a heavy gas pressure of between 8,000,000 and 10,000,000 cubic feet. This well showed nothing but gas when drilled in, but drill itself into one of the big gushers of the area and opens up a vast area of territory and practically connects the El Dorado and Cates pools.

Tidal Osage Oil Co., No. 4 Gaddy tract, section 5-18-15, estimated at around 150 barrels a day.

G. S. & G. Oil Corporation, No. 3 Cates tract, sections 29-18-15, estimated at better than 2,500 barrels, and between the Cates and El Dorado pools.

Woodley Oil Co., No. 2 Woods tract, section 6-18-15, and east of the town of El Dorado, showing for 25 barrels at 2,156 feet, with an abundance of natural gas.

Sun Co., No. 5 Harmon tract, section 8-18-15, estimated at around 70 barrels a day at 2,183 feet.

Pure Oil Co., No. 5 Hinson tract, section 6-18-15, estimated at 60 barrels at 2,182 feet.

Magnolia Petroleum Co., No. 10 Ruth tract, section 8-18-15, estimated at around 40 barrels at 2,144 feet.

Cottingham & Co., No. 2 Baker tract, section 7-18-15, estimated at around 70 barrels at 2,158 feet.

Southern Oil Co., No. 6 Armstrong tract, section 31-17-15, estimated at 200 barrels at 2,183 feet.

El Dorado-Keystone Oil Co., No. 1 McWilliams tract, section 5-18-15, estimated at around 125 barrels.

Standard Oil Co. of Louisiana, No. "B" 6 Combs tract, section 18-18-15, estimated at 150 barrels at 2,147 feet; No. "A" 4 Robertson tract, section 32-17-15, estimated at 25 barrels at 2,171 feet; No. 1 Helwig tract, section 7-18-15, estimated at 85 barrels at 2,192 feet; No. "B" 8 Hinson tract, section 6-18-15, estimated at 1,100 barrels at 2,163 feet.

Near Completions

Among the wells that are due for completion any time are:—Greenwood & McDuff's No. 3 Newsom tract, section 5-18-15; Skelly Oil Co., No. 1 Woods tract, section 6-18-15; Timberlake Oil Co., No. 1 Boswell tract, section 19-18-15; Hobart & Smith, No. 1 Cates tract, section 33-18-15; Noco Petroleum Co., No. 1 Wells tract, section 19-18-15; Constantine Refining Co., No. 4 Robinson tract, section 6-18-15, and No. 1 Combs tract, section 18-18-15; Standard Oil Co. of Louisiana, No. 1 Aaronson tract, section 33-18-15; No. 8 Herrin tract, section 18-18-15; No. 3 Reynolds tract, section 6-18-15.

Not less than fifty wells in the Cates and El Dorado pools are now close to the top of the sand, and when drilled in should show an increase in the daily output of the Arkansas oil field.

WEST TEXAS

Shortage of Water Handicaps Drilling Operations in This Section—Several Tests

SAN ANGELO, Texas, Dec. 4, 1921.

Oil operations last week in West Texas were marked by the placing on the pump finally of Shultz No. 3 of the Texas-Meers Oil Co. in Concho county, the scheduled spudding of a well in Mitchell county by S. A. Sloan and associates, sinking of a test for water to permit the starting of Howard county's latest test, the hauling of derrick timbers to a location in Sterling county and relinquishment by the Terre Haute (Ind.) Syndicate of its holdings in Pecos county, tentatively contracted for.

The shortage of water continues to be the greatest handicap in counties along the Texas & Pacific Railroad. For the first time in several weeks, reports were obtained from Scurry and Borden counties. In Borden, the Jones Drilling Association has been shut down at 1,308 feet for the laying of 4,000 feet of water line. In Scurry, the running of water pipe some distance to a windmill has caused suspension of work at the Stanton Oil Co.'s test at 3,075 feet. The bottom of the well is in hard gray lime.

Plugging of the Ranger-Extension Oil & Gas Co.'s well on the W. F. Woodrum farm in Nolan county was completed on November 19 and the rig is now being taken down. The 4,610-foot test of the Wichita Nolan Oil Co. on the R. B. Kuteman tract, also in Nolan county, has been plugged back to 1,500 feet and 12½-inch pipe is now being drawn. The hole is to be abandoned.

Spudding in by A. P. Spaulding of Oklahoma of a well in Mitchell county for S. A. Sloan and others was expected to take place early this week. The location is on the Mrs. Silpha Morrison lease, section 31, block 28, township 1 north, between Foster No. 1 near Iatan and T. & P. No. 1 of the Underwriters north of Westbrook.

The Renotex Oil & Gas Corporation on the C. P. Conoway lease, 14 miles southwest of Colorado City, solved its water problem by leasing a water well on a nearby farm, and late last week was drilling in sandy gray lime around 3,130 feet. On the Nat Smith ranch, six miles west of Colorado City, the Crescent Drilling Co. was drawing 8¼-inch casing to underream from 1,155 to 1,255 feet and land the pipe on the bottom. Salt water coming from 1,175 and 1,245 filled the well to a depth of 600 feet. A broken cross-head on the engine at Underwriters' Producing & Refining Co.'s Morrison No. 2 had occasioned a delay at 2,540 feet in gray lime. The hole was dry, and casing extends to 2,450 feet.

To Resume Work

The Colorado-Texas Petroleum Co. planned to resume work December 1 at Foster No. 2, where work was suspended early in November on account of the accidental killing of John Adams, of Strawn, member of the crew, who died from injuries sustained when he fell from a truck on which machinery was being taken from Colorado City to Strawn for repairs. The depth at the time was 335 feet, 12½-inch pipe having been set to the 300-foot level. Cleaning out is under way at Foster No. 1, which is around 2,650 feet deep. After the tubing was drawn, the crew fished for a five-inch bit. The well until recently was on the pump, making about six barrels of oil daily in a 12-hour run by pumping an hour and shutting down for an hour. Five and three-sixteenths-inch casing was run to 2,625 feet and from 150 to 200 feet of mud and ashes was poured in. This, however, failed to stop water from leaking in.

Howard county's only bid for notice at present is on the C. D. Read ranch, 15 miles east of Big Spring, where the Tanico Oil Co. of Pittsburgh has set up a derrick on a 2,560-acre tract. Spudding in is waiting on the obtaining of a water supply. The Middle States Oil Co. of Uniontown, Pa., started the project.

Floyd Dodson, field manager for the Chicago-Texas Oil & Gas Syndicate, was in Sterling City last week to receive a complete rig, shipped there from Winters, for the drilling of a well on the D. C. Durham farm in Sterling county. The derrick will be erected about 2½ miles from Sterling City on the northwest corner of the southwest quarter of section 18, block T, Texas & Pacific Railway Co. Survey. Considerable acreage in Howard county, adjoining Sterling county, is also reported to be held under lease by the Chicago-Texas firm.

Derrick timbers were being hauled last week by the Cushing Ranch Drilling Association from Big Spring to the F. C. Sparkman ranch in Glasscock county, where a test for oil will be sunk on section 34. The cellar was started last Thursday, a week ago, and the derrick is now going up. At the Enders-Cushing first test in the county, on W. F. Cushing's ranch, 20 miles southeast of Big Spring, the crew is underreaming to land 6⅝-inch casing in hard lime to around 2,900 feet. McDowell No. 4 by the receivers of the General Oil Co. was making hole below 700 feet. Since casing was landed to 530 feet, much water has been encountered and this has caused underreaming and other delays.

In Brewster county, the Nine Points Oil Co. on the lease of the Union National Bank of Houston in the Bone Springs district drilled last week to around 700 feet in hard rock. The Brewster Oil Co. on the W. H. Kokernot ranch was making good progress around 750 feet. At Doddridge No. 1, the Portland Oil & Gas Syndicate had had some promising showings of oil in going to below 1,400 feet. Fifty-three miles south of Alpine, on the Wilson ranch, the Western Petroleum Co. at Wilson No. 2 was drawing a 6⅝-inch casing from 3,197 feet in order to straight ream and run 8¼-inch pipe to the bottom.

Troy-Graham Co. to Start

Walter L. Divers, banker of Guernsey, Wyo., who partly financed the Troy-Graham operations in Pecos county, has written to Fort Stockton parties that the affairs of the firm are being straightened out and that work will shortly be resumed at the firm's 1,100-foot well on the Turney ranch, section 20, block 140, T. & St. L. Ry. Co. survey. Since drilling ceased oil has seeped into the hole and is now standing about 16 to 20 feet deep, it is reported. The Oregon-Texas Drilling Syndicate's well and holdings have reverted from the Terre Haute (Ind.) Syndicate to the Grant Oil Corporation, and a boiler, which was hauled from the abandoned Texas Top well on the White & Baker ranch, is being installed. The 1,185-foot well on the Turney ranch, section 19, block 140, T. & St. L. Ry. Co. survey, will now be carried down at least to 3,000 feet.

The third well by Dave Humphreys for A. F. Luse of Fort Worth, on section 15, block C-3, East Line and Red River Ry. Co. survey, has been drilled to around 250 to 300 feet. On Sherbino Bros.' ranch the Humphreys Co. is straight reaming to 825 feet on section 55, block C-4, G. C. & S. F. Ry. Co. survey, in order to set casing and exclude water, which caused delay. Bower, Hale, Lamb & Findeiss, on section 592, G. C. & S. F. Ry. Co. survey, are still fishing at 1,000 feet for 10-inch casing. Bower, Hale & Lamb have drilled with a star machine to 1,650 feet on section 24, block 26, University land. The Pinal Dome Oil Co., on Mrs. Mary Devlin's ranch, section 208 Burleson survey, drilled last week from 3,355 to 3,425 feet in limestone.

In Reagan county, the Texan Oil & Land Co., on the Wilson ranch, University land, 14 miles west of Big Lake, was fishing for a bit in its 700-foot hole, after securing a 15½-inch socket. In Tom Green county, all but a few joints of the 800 feet of 6⅝-inch casing had been removed from the well of the former San Angelo Oil & Gas Co., on the Harris place, five miles north of San Angelo. After the casing is taken out the hole will be straight reamed from 2,545 to 2,580 feet.

Water is being pumped off in the Texas-Meers Oil Co.'s Shultz No. 3 in Concho county to permit a test of the oil found in shooting 26 feet of sand down to 1,399 feet late in October. The casing leaked and the tubing had to be drawn and reset on the bottom with a sand screen attached. Ninety-nine feet of open hole down to 1,404 feet was closed with a liner, which extends into the 8¼-inch casing for 24 feet.

The Transcontinental Oil Co., on the John Saul ranch in Coke county, is still fishing for 100 feet of 6⅝-inch pipe and a bailer in its 3,736-foot hole. On the J. H. Ariedge ranch, section 272, Allen & Chappin broke a line and lost a slush bucket, work being suspended at 3,345 feet in sandy shale. An unconfirmed report says that the hole may be abandoned, though it is dry, water being cased off.

Near Winters, in Runnels county, the Johnson Oil Co. of Fort Worth, operating under the name of the Runnels County Oil Syndicate, is laying two and a half miles of two-inch water line to Elm creek. The well is 1,615 feet deep, and no hole has been made since the project of the Winters Oil & Gas Co. was taken over from Joe Bartles and others. An obstruction, probably a joint of pipe, in the bottom has required much time in being drilled up. The well is on the Lee Seals tract.

CALIFORNIA

Twenty-one New Wells Started During the Week Ending November 26

LOS ANGELES, Cal., Dec. 3, 1921.

The Sagebrush Oil Co., wildcatting on Sec. 17-22-19, Kings county, twelve miles southwest of the town of Stratford and a few miles to the west of the marshlands bordering the dry Lake Tulare, had a gas blowout a few days ago, after less than a week's drilling. The derrick was wrecked and the hole ruined. Twenty-four hours of intermittent, geyser-like eruptions of shale, mud and water, with a showing of oil at the final splash, sometimes shooting as high as a thousand feet, was terminated by the collapse of the derrick and with the contents choking up the hole.

The operators are local ranchers who had expected to strike an oil sand at 365 feet, basing their belief on oil being encountered in a domestic water well on the same section and a quarter of a mile to the northwest. They will drill a new hole.

The American Eagle Oil Co. is the most recent corporation composed of California oil men whose activities will be centered in developing the south half of section 10-30-22 in the Elk Hills district of Kern county, near McKittrick. The lumber for a standard 114-foot derrick is on the ground. Interested in the company are James B. Baker, J. Blair Baker, R. E. Havenstrite and both members of the drilling contracting firm of Tucker & Johnston, all of Taft.

The activity in the west end of the Elk Hills district is due to the bringing in about three months ago of a big gasser on the Transport Oil Co. property by Tucker & Johnston.

The Union Oil Co. of California has leased a parcel of land in section 12-30-22, two miles east, for which they paid a bonus of $1,000 an acre and contract to pay up to 25 per cent. royalty on all production. Preparations for drilling are under way.

C. E. and R. E. Cooper, successful operators in the Breckenridge, Texas, field, have leased in section 14-30-22, and work will be under way in a short time.

Drilling Eight Wells

W. R. Ramsey, who is drilling eight government offset wells in the Naval Reserve adjoining the Standard's Tupman section, has leased the northeast quarter of section 12-30-22 and started drilling operations.

The West Elk Co., headed by Myrt Kowalsky, of Bakersfield, is also preparing to start development work in this territory, as is also J. D. Daugherty, of San Francisco. The latter has a government lease on section 4-30-22.

During the past week the Standard has started drilling well No. 16 in section 31-30-22 and the Brockshire Oil Co. has spudded in its No. 6 in section 24-31-22.

While work looking to the proving up of new territory in various parts of Kern county is going forward with great strides, development in the Poso Creek district keeps well to the fore. The Standard is reported to have made a success of its No. 6 well in section 27-28-27, in that district, as the result of deepening. The Caribou Oil Co. is planning early drilling operations in sections 8 and 11, 28-27, and the Midway Premier likewise in section 32-27-27. The East Puente on section 13 and the Fresno-Montana leases promise to be the scene of early development, and the California Central Oil Co. has leased in section 16-28-27 and will start the drills shortly after the first of the year.

Geologists have estimated that the Poso Creek district holds a potential production of 180,000,000 barrels of oil, while operators are confident that drilling will prove up a much wider territory with a larger yield. The daily average of this field at the present is around 1,000 barrels.

The Merchants Petroleum Co., with headquarters in Los Angeles, has entered into a contract with the W. M. Keck Drilling Co. to drill four more wells on its Payne lease in the Richfield district. This will make a total of six wells on its 19-acre lease. Well No. 1 is flowing about 200 barrels a day, No. 2 is down 2,370 feet, and the rig for No. 3, which the Keck company is to drill, is about ready for spudding in. The contractor is to drill the four wells for $90,000 each and to receive $45,000 cash on the completion of the first well; the balance of the cost of the first, together with the entire cost of the other wells to be paid out of one-half the production. After the contract price is paid Keck retains no interest in production.

The Amalgamated Oil Co.'s new well on the Butterworth lease at Santa Fe Springs is producing an average of 300 barrels a day of 34.5 gravity oil, coming from 4,682 feet, and has the distinction of producing the highest gravity oil in largest quantity from the greatest depth of any well in the State.

The Union's Bell No. 1 in the Santa Fe field is keeping up a 2,500-barrel-a-day record and rigging up for several more wells. The Standard has seven wells drilling in the district, all started within the month.

To add to its activities in Southern California, the Union Oil Co. is going back to Signal Hill district. Four years ago it drilled a test well about a mile north of the hill, on low ground within the territory covered by the great Bixby ranch. Although some oil showed, the well never assumed any commercial possibilities and was abandoned. Now the company has leased the Hart ranch on the west side of the hill and not far from the well brought in a few days ago by the San Martinez Oil Co. This well came in with an initial flow estimated at 3,000 barrels a day through a half-inch opening from 3,592 feet, the oil testing 24 gravity. It was pinched down with a three-eighths inch nozzle to 1,250 barrels that continued for about a week, when it sanded up.

The success of the San Martinez gives great encouragement to close by properties, such as the Walker-Western, Coast States, Guaranty, Spaulding and Mike Michaels.

Test at Signal Hill

The California Mexican Petroleum Syndicate will probably bring in the next producer on Signal Hill. The 8-inch casing was set at 2,821, and on drilling out the cement plug the hole immediately filled with oil, displacing the water as soon as it was baled out. The well looks like a commercial producer just as it stands, but it is the intention to go deeper into the sand before putting it on test. It is barely a hundred yards from the Sheil company's discovery well.

The Sheil has been expecting the Alamitos No. 3 to be the next well on proudction, but the event has been delayed through the parting of the 8-inch casing while in the act of being pulled out, and now a fishing job is on.

The City of Long Beach, within whose corporate limits is the Signel Hill oil field, and where the city owns in fee thirty-five acres, all of which has been leased for oil drilling, has started on the way to becoming a taxless city. The Continental Asphalt & Petroleum Co., leasing a two-acre tract, has brought in a well that indicates it is good for better than 150 barrels a day of 24 gravity oil. Production is coming from 3,121 feet, while a well of the Shell Co., 200 feet away, is producing about 300 barrels a day from 3,114.

The Sheil Co. has added another producer this week. This time it is its Taylor No. 3 at Ventura, which came in with an initial flow of 425 barrels of 32 gravity oil, accompanied by 250,000 cubic feet of gas a day, from 3,737 feet.

E. J. Miley, of Los Angeles, president of the State Consolidated Oil Co., who has been drilling in the Huntington Beach field since 1920 and has one big producer, another about to come in and three others drilling, all on his individual account, is incorporating a new company to be known as the Royal Oil Co. The five wells, together with a leasehold and one well drilling at Signal Hill, will form the nucleus of the company's holdings.

The Standard Oil Co. has a new well in its A-4 at Huntington Beach. It is doing 425 barrels from 2,845. The company's second largest well, the A-12, is doing better than 1,100 barrels. This A group is the company's earliest operation, and it appears they all will make good.

Twenty-one new wells were started in California during the week ending November 26. While this was seven less than the week before, the total for the year is 1,187, as compared to 814 the same time last year. There were nine tests for water shutoff, making a total for the year of 1,303, as against 1,134 last year up to same date. Deepening and redrilling jobs totaled 13, the week before 11. Total to date this year, 616; same date last year, 819. One well was abandoned, making the total for the year 190; last year, 185.

Detailed list of the new wells started follows:—

Company and field.	S. T. R.	W.
N. MacDonald, L. A. county	19- 1-12	1
Pet. Midway, L. A. county	31- 2-12	1
McGinley, Montebello	6- 2-11	15
Wonder, Richfield	30- 3-19	4
Standard, Santa Fe Springs	31- 2-11	1
Standard, Santa Fe Springs	31- 2-11	1
Standard, Santa Fe Springs	31- 2-11	1
E. J. Shields, Huntington Beach	2- 6-11	1
Co. Oil Prod., Santa Paula	34- 4-21	1
Salisbury & Co., Conejo	34- 2-20	1
Ada Asson, San Luis Obispo Co. San Maguelito		1
W. R. Ramsey, Elk Hills	12-30-22	1
Pan-American, Elk Hills	1-31-24	5D
Pan-American, Elk Hills	1-31-24	10D
Lake View No. 2, Sunset	4-11-23	4
Standard, Elk Hills	31-30-25	17
American Eagle, Elk Hills	10-30-22	1
E. & M., Midway	10-31-22	1A
Standard, Kern River	11-28-27	8
Sagebrush, Kings county	18-22-19	1

MEXIA, TEXAS

Daily Production Is Now 80,000 Barrels — Desenberg Sells 100,000 Barrels at $1

MEXIA, Tex., Dec. 5, 1921.

Only one completion of any interest was reported from the Mexia field, in Limestone county, during the past week, which added 12,000 barrels new production to the daily output, placing the production of the field at 80,000 barrels. There is a number of tests that are due to get the sand within the next week, and as they are in what is considered as gusher territory, a substantial increase is looked for. If all the wells were allowed to flow their full production, the daily production would be in excess of 100,000 barrels.

Numerous dry holes are making their appearance in the western portion of the field, and the prediction made in these columns several weeks ago that the producing area would not extend more than a location or two west of the Nussbaum well is rapidly being verified. Four dry holes have made their appearance on this tract, just a location or two removed from the 4,000-barrel well that was completed shortly after the Desenberg well, which shows that the sand is very irregular in that direction and that the geologists had the right view as to the structure.

There are at least twenty wells drilling on the west side of the pool that are rated as dry holes, and during the next few days several are due to be reported. The Humble Oil & Refining Co. finished No. 1 Slaughter, good for 12,000 barrels, it being the only large completion of the week. South of it two locations the Woodbine Oil Co. on the same farm, has not better than a small well. In the southern portion of the field the Humphreys Pure Oil Co. finished Nos. 2 and 3, Winn, that will not make over 100 barrels each. No. 2 Desenberg is not better than a 900-barrel well as it stands. The initial well on this farm is making 2,200 barrels. The No. 1 Gamble of the same interests is good for 500 barrels, but may be improved with deeper drilling. It is not over two locations southwest of the Hester Ross, which is a large well. The Gamble did not come up to expectations, as it was thought that it would make a much higher initial showing.

In the Currie district, in southern Navarro county, it will be a week or two before any other tests in that locality are due. The West well, north two and one-half miles from the Meador discovery well, is said to be in sand and looking good. It is now the most important test in the field. Over on Pisgah Ridge, Morris Frazier is due to drill in this week on another important test. The Jap Oil Co., on the Longbottom farm, west and south of Wortham, is a salt water well in the Woodbine sand, but is being plugged back to 3,011 feet, where there was a small showing. It is in the sincline and does not seem to have much chance.

Over 350 rigs are up in and around Limestone and Navarro counties, and it is the general belief that something worth while will be developed from some of the outside tests. To the conservative one there does not seem much chance of the Mexia field being extended, unless it is to the north and northeast. Every other direction seems to be out of the question. At the present time six miles long and by half as wide will cover the entire producing area, with the rich streak not over four miles long and three-quarters of a mile wide. It is too early to know what the extent of the field will be, as the unexpected generally happens in the oil business.

A deal was consummated the first of the week whereby the Magnolia Petroleum Co. has purchased the oil from the Julius Des-

enberg royalty interest in the Mexia field. It will be remembered that Mr. Desenberg refused to sell his oil that is being produced from his rich farm at the present market price. In the new deal he is to receive $1 per barrel, and he has sold 100,000 barrels at this price.

When the Magnolia Petroleum Co. purchased from the Wester Oil Fields Corporation the Desenberg forty-eight acres, it posted a market price of 60 cents for the Mexia crude. It was at this time that Mr. Desenberg decided that he would hold his one-eighth of the production for a higher price. Even after the Magnolia raised the credit balances to 75 cents he refused to sell, and the Magnolia Petroleum Co. has been storing his production and was to charge Mr. Desenberg at the rate of two cents per barrel monthly for storage, but in receiving $1 Mr. Desenberg will not be compelled to pay the gathering or the storage charge, and therefore has made a neat profit by holding on.

At the present time this rich lease has produced better than 640,000 barrels, of which Mr. Desenberg's share would be 80,000 barrels, and it will not take over two weeks additional to make up the balance of 20,000 barrels, which will complete the contract just made.

The present production of the Desenberg lease is 12,000 barrels daily from two wells. The initial producer, which up until two weeks ago had produced over 410,000 barrels from October 6 to November 17, a daily average of better than 10,000 barrels, has fallen down to 9,000 barrels daily, due to the drain on the pay formation by the numerous other wells that have been completed in the past two weeks. The second well was finished several days ago and is making 3,000 barrels daily.

The remarkable staying qualities of the initial well have been the talk of the oil country, but the fact that it was drilled in first gave it a chance to get the producing sand in better shape, or, in other words, groove a good channel for the oil to produce through. In fact, when the Mexia field becomes history it will be found that this 48-acre tract is one of the banner ones.

It will not be but a month or just a trifle longer that this lease will have produced 1,000,000 barrels, and it will reach that point long before any of the other rich leases of the field. When the Magnolia Petroleum Co. paid $1,100,000 for this lease after but a three hour' gauge the people thought that it had made a poor buy, but since the well was opened on October 6 it has made enough oil to pay for the lease and the development and it is now on velvet. Two other wells are drilling, but they will not compare with the No. 1 in size, but will be good-sized wells. The company is getting out the flush production as quickly as possible, and this is what is paying in the Mexia field, where high prices predominate.

Oil Is High Grade

There has been a great deal of discussion as to the grade of the Mexia crude, and one can hear most any report. Some say that the oil is of low gravity and that it is not a good grade of oil, but if one will take the time to look up the various companies that are in Mexia today trying to buy the crude at an advanced price he would believe otherwise, for seeing is believing. There is hardly an independent refiner in the country that has not had representatives on the ground trying to purchase the daily runs from the various producers.

But there is very little to be had, as the Humble and the other large interests are taking all the oil that they can handle. At the present time the Humble Oil & Refining Co. is the largest producer of crude in the field, buying approximately 20,000 barrels daily, besides its own production, which is at least half of that.

For some reason the Magnolia Petroleum Co. has not been buying any crude, but this is possibly due to the fact that it has had over 10,000 barrels daily for a long period from its own holdings, and its pipeline capacity was not sufficient to handle much more. The Humphreys Pure interests are running 18,500 barrels daily and the rest of the production is taken by independent refiners.

According to late tests, the Mexia crude shows a gravity of between 36 and 37 degrees Baume, with the usual high content of high grade lubricating and cylinder stock and wax, and is capable of yielding 65 per cent. of commercial gasoline. Sufficient cracking tests have been made to demonstrate that it is practicable in a commercial way to convert most of the crude into gasoline and to get a maximum yield of lubricants and cylinder oils, as well as wax. The value of this crude is demonstrated as being equal to some of the best of the mid-continent crudes, better than most of them in the particulars named.

ROUMANIA

Good Gain in Completions and an Increase in Production of Oil

BUCHAREST, Nov. 14, 1921.

Returns for the fortnight indicate a material gain in completions and a more than proportionate increase in production. The feature has been the bringing in of several noteworthy producers. The Astra Romana Co.'s well No. 55, at Moreni, after having yielded for a short time 150 tons of oil per day by bailing, started making powerful eruptions, flowing at the rate of 300 to 400 tons a day, settling down to an output of 200 tons per day.

The Romano-Americana Co. completed two wells at Moreni-Tzuicani, which, after having been cleaned of the great quantity of sand, are now producing, one 120 and the other 150 tons of oil per day.

The same company brought in their well No. 44, at Baicoi-Ferbatori, which on October 27 made a violent eruption and spouted about 750 tons of oil in 24 hours. But the sand that came with the oil has damaged the valve so that it had to be closed. As soon as this will be repaired the well will give a regular production, which is expected to be a very good one.

The Concordia Co. has increased the output of its well No. 32, at Baicoi, to 30 tons a day, and expected two other wells to become producers.

The Orion Co.'s well No. 606, at Runcu, which struck the oil some time ago and was burned, has been reconstructed and cleaned of sand. Now it started producing 80 to 120 tons a day by eruption.

The Aquila Franco-Romana Co. completed its well No. 104, at Bana-Moreni. The production is not yet established.

Operations in all the pools have been generally stimulated as a result of recent completions.

In general the production of the country has marked a noticeable increase and can be valued at present at more than 400 tons per day.

The following table shows the crude oil production of Roumania for September, 1921:—

Table 1

Production of Crude Oil in Roumania for September, 1921, in Metric Tons

	Aug., 1921.	Sept., 1921.
Districts and fields.		
Moreni and Bana Moreni	45,533	43,355
Campina Poiana	6,370	6,670
Bustenari Calinet	6,740	6,296
Chiciura, Gropi, Tzontesti	4,526	2,487
Bordeni, Runcu	786	716
Runcu-Scortzeni	3,890	2,862
Tzintea	3,700	4,395
Baicoi	6,435	7,072
Filipesti de Padure	627	822
Other fields	160	47
Total of district Prahova	78,767	74,722
Total of district Dambovitza	15,546	16,422
Total of district Buzau	8,323	7,682
Total of district Bacau	3,496	3,385
Grand total	106,132	102,211

The production of crude oil for September was 3,921 tons less than that for August, 1921.

Prices

The firm tendency noted in our previous report has continued throughout the past fortnight, and prices were higher. Demand has been very active, especially by refineries, which have no production of their own, or one insufficient to cover their needs.

The increase in production did not influence the price, as the new production belongs exclusively to the big companies, which do not sell the crude but run same in their own refineries. (See table 2.)

Exports

The export movement was very active at steadily increasing prices, especially for light naphtha and heavy benzine. Unfortunately the stocks are nearly sold up, and nothing is impossible for the next few months. Illuminating oil, too, was in good demand at remunerating prices.

Situation of wells in the Stavropoleos and Moreni-Tzuicani fields on October 23, 1921:—

WELLS DRILLING

Astra Romana Co.—Well No. 46 was 587 meters deep, with 5½-inch casing; well No. 56, 307.8 meters, 17½-inch casing; well No. 61, 640.20 meters, 7¼-inch casing; well No. 71, 38.50 meters, 600 mm. casing; well No. 80, 462.50 meters, 13-inch casing; well No. 81, 218.50 meters, 20-inch casing.

Concordia Co.—Well No. 6 was 878 meters deep, with 5-inch casing; well No. 14, 888 meters, 5½-inch casing.

Colombia Co.—Well No. 3 was 720 meters deep, with 6-inch casing; well No. 5, 230.60 meters deep, 500 mm. casing; well No. 6, 798.50 meters, 12-inch casing.

Romano-Americana Co.—Well No. 85 was 863.70 meters deep, with 6-inch casing; well No. 107, 774.30 meters, 6-inch casing; well No. 109, 338.40 meters, 20-inch casing; well No. 128, 752.40 meters, 12-inch casing; well No. 15-P, 667.50 meters.

R. Van Sickle.—Well No. 1 was 801.50 meters deep, with 13-inch casing.

T. R. D. F. Co.—Well No. 1 was 219.50 meters deep, with 550 mm. casing; well No. 2, 406.90 meters, 500 mm. casing; well No. 8, 200.80 meters, 650 mm. casing; well No. 9, 400 meters, 500 mm. casing; well No. 10, 187.50 meters, 650 mm. casing; well No. 12, 215.20 meters, 500 mm. casing.

Creditul Minier Co.—Well No. 6 was 732 meters deep, with 7-inch casing; well No. 8, 711 meters, 8½-inch casing.

WELLS PRODUCING

Astra Romana.—Well No. 30 yields 1,000 kilos per day; well No. 26, 16,000 kilos; well No. 40, 4,000 kilos; well No. 36, 28,000 kilos; well No. 37, 25,000 kilos; well No. 41, 14,000 kilos; well No. 48, 1,000 kilos; well No. 49, 10,000 kilos; well No. 50, 5,000 kilos; well No. 55, 230,000 kilos; well No. 64, 10,000 kilos; well No. 69, 210,000 kilos; well No. 76, 13,000 kilos; well No. 79, 28,000 kilos; well No. 23-S, 35,000 kilos; well No. 3-M, 1,000 kilos; well No. 29, 1,000 kilos; well No. 14-A R, 8,000 kilos; well No. 15, 16,000 kilos; well No. 18, 25,000 kilos; well No. 21, 2,000 kilos; well No. 24, 39,000 kilos; well No. 33, 7,000 kilos; well No. 34, 15,000 kilos; well No. 12-A, 8,000 kilos; well No. 16-S, 17,000 kilos; well No. 62, 2,000 kilos.

Romano-Americana Co.—Well 1 St. yielded 5,000 kilos per day; well No. 2 Sp., 15,000 kilos; well No. 51, 20,000 kilos; well No. 55, 16,000 kilos; well No. 69, 24,000 kilos; well No. 79, 60,000 kilos; well No. 88, 130,000 kilos; well No. 89, 90,000 kilos; well No. 90, 90,000 kilos; well No. 114, 120,000 kilos; well No. 115, 150,000 kilos; well No. 2-P, 30,000 kilos; well No. 13-P, 100,000 kilos.

Credit Minier Co.—Well No. 2 yielded 45,000 kilos per day; well No. 3, 30,000 kilos.

Steaua Romana Co.—Well No. 5 yielded 10,000 kilos per day; well No. 6, 1,500 kilos.

Phoenix Oil Transport Co.—Well No. 1 yielded 6,000 kilos per day.

Charles Gustafson, of Gustafson & Spencer, Inc., Chicago, has returned from a trip to the Tulsa, Okla., field.

CANADA

Fourteen Oil Claims Recorded for Locations on the Mattagami River

CHATHAM, Ont., Dec. 6, 1921.

Some new development work is in prospect in the James Bay district of Northern Ontario. Recently some fourteen oil claims were recorded at the Haileybury mining recorder's office, the locations being on the Mattagami River, to the north and west of Oil San Portage, the proposed terminus of the new extension of the T. & N. O. Railroad. Each claim comprises 640 acres. Some claims were previously recorded in Northern Ontario, and good samples of oil shale have been brought out, but owing to lack of transportation facilities, no development work was done. A group of claims was staked by Charles McCarthy and associates of Elk Lake, and the R. S. Potter syndicate of Matheson is also interested. Applications have also been made for drilling permits on several of the claims staked in this territory, so that actual development work is in prospect.

The territory was reported on a short time ago by Dr. M. Y. Williams of the Geological Survey, who found some fair prospects of oil at comparatively shallow depths.

In Dufferin county, Central Ontario, the deep test of Canadian Oilfields, Ltd., near Shelburne is reported to have developed a considerable gas flow around 2,600 feet.

Nova Scotia Prospect

It is reported that the D'Arcy Development Co., a production subsidiary of the Anglo-Persian Oil Co., is interested in a project to develop oil production in Pictou county, Nova Scotia. This company is at present drilling for oil and also testing oil shale deposits in the adjacent province of New Brunswick.

Between sixty and seventy years ago the shale deposits of Pictou were worked commercially. Deposits were also discovered near Stellarton, Nova Scotia, of a type of oil shale known as stellarite, which produced an exceptionally large percentage of crude oil. This was mined in large quantities and shipped to oil shale plants and gas works in the Eastern States. As a result of the liquid oil development in Pennsylvania, however, the shale industry went out of business.

Pictou contains extensive shale deposits. The D'Arcy Development Co. and the Anglo-Persian Oil Co., besides their interests there and in New Brunswick, are interested also in drilling and oil shale development in Newfoundland.

Alberta

In the Monitor district, Eastern Alberta, drilling operations on all the plants have been shut down till next spring. The West Regent Oil & Gas Co. is down 2,600 feet and recently got a fair show of wet gas. However, a sudden cold spell, with temperature 30 to 35 below zero, shut off the water supply and brought the work there to a complete standstill. Wet gas and oil were encountered at 2,300 feet, and the gas flow increased somewhat with deeper drilling.

The Imperial Oil, Ltd., drilling outfit in the Misty Hills, south of Monitor, was recently destroyed by fire, together with the camp buildings, as a result of the gasoline engine backfiring owing to extreme cold. The test was down 1,700 feet and the tools are now in the hole. The drillers will try to recover the tools, but no more work will be done till next spring. The Talpey-Arnold syndicate plant and the Mud Buttes Oilfields, Ltd., test at Monitor are both shut down for the winter.

In the foothills district, the Christie well on the Bar-U ranch, near Nanton, being drilled by Imperial Oil, Ltd., for the Alberta Associated Oils, Ltd., of Calgary, is to be abandoned owing to collapsed casing. It had been drilled to 2,860 feet. Imperial Oil, Ltd., is also reported to be considering the abandonment of its test in the Willow Creek field, west of Nanton.

In Eastern Alberta, the Imperial Oil, Ltd., test on section 18-45-7-4, near Fabyan, in the Irma district, is going ahead steadily. It is reported that the gas line from the Grattan Oil Co. gasser near Wainwright has been completed and the test spudded in. The Union Oil Co. is interested in a test on section 5-35-4-4 in the Irma district, and it is reported that three or four more tests will be started by other companies. A large acreage is under lease to various companies, the Union being reported to hold 40,000 acres or more, while Imperial Oil, Ltd., recently increased its holdings.

Imperial Oil, Ltd., recently spudded in a new test in the Coalspur district, southwest of Edson. This is another section of the foothill belt. The test is now drilling around 200 feet.

In the Pouce Coupe district, northwest of Edmonton, Imperial Oil, Ltd., is reported to have got control of the gas flow in its well on Pouce Coupe Creek, and to be ready to drill deeper for oil.

In the Athabaska district, Prof. John A. Allan of the University of Alberta is investigating a proposal to utilize the tar sand deposits for roadmaking in the Edmonton district. The deposits are now within easy reach of the Alberta & Great Waterways Railway, and an experimental pavement laid some years ago in Edmonton is reported to have given good service.

CANADA—GAS

CHATHAM, Ont., Dec. 6, 1921.

The gasser recently finished by the Provincial Natural Gas Co. at Point Abino, Bertie township, Welland county, Ontario, is reported to be a large producer and indicates the possibility of an extensive field. Previous deep drilling in this area was rather unsatisfactory, though a small production was secured in one well. The Provincial Natural Gas Co. is starting another test in the same district.

In the Dover field, Kent county, Ontario, the Universal Oil & Gas Co., J. Bagnell farm, Dover township, is reported drilling at sixty feet in the Trenton limestone without a show. Union Natural Gas Co., No. 16 Duphette farm, is cased to the Trenton limestone and ready to resume drilling. No. 15, Myers farm, is rimming down to about 2,600 feet before casing.

In the Tilbury field, Union Natural Gas Co., No. 201 Sloan farm, lot 10, concession 10, Tilbury East, is rigging up. The Glenwood Natural Gas Co. test opposite the Renwick farm, is drilling.

In the Dawn township field, Lambton county, the Union Exploration Co. work is completely shut down.

BIDS AND AWARDS

Oil Awards

San Francisco Circular R. M. & F. 22-36

Following awards were made by the quartermaster supply officer, Fort Mason, Cal., under circular R. M. & F. 22-36, opened November 14:—

Bidder 1. Associated Oil Co., Sharon Building, San Francisco.

7. Standard Oil Co., 200 Bush street, San Francisco.

6. Shell Co. of California, 343 Sansome street, San Francisco.

Item 1. 12,200 gallons oil, lubricating; 300 gallons motor, extra light, cans, 34c., bidder 7.

1. 1,000 gallons do., motor, medium, barrels, 28c., bidder 1.

3. 300 gallons do., motor, heavy, barrels, 28c., do.

4. 350 gallons do., motor, extra heavy, 30c., do.

5. 150 gallons do., 51c., bidder 7.

6. 100 gallons do., turbine and dynamo, barrels, 28c., do.

7. 5,000 gallons do., marine engine, barrels, 42c., do.

8. 2,500 gallons do., red engine and machine, light, barrels, 19c., do.

9. 2,500 gallons do., medium, barrels, 20c., do.

10. 2,200 barrels oil, fuel, Alcatraz Island, $1.58, bidder 6.

Note.—Conditions being equal, preference will be given bids quoting delivery at Fort Mason, Cal. (for lubricating oil).

Motor Gasoline

Office of the Superintendent of Lighthouses, Tompkinsville, N. Y.—Bids are wanted until December 22 for 1,200 gallons motor gasoline. For information address above.

Gasoline and Oil

Office of the Quartermaster, U. S. Army, Fort Missouia, Mont.—Bids are wanted until December 16, circular 21-10, for 1,500 gallons gasoline and 70 gallons motor oil. For information address above.

Floor Oil

Atlanta Q. M. Circular 22-28

The following bids were received on November 26 at the Atlanta general intermediate depot, Atlanta, Ga., circular 22-28, for 1,500 gallons floor oil:—

Tide Water Oil Sales Corporation, 11 Broadway, New York city, 31.5c.; discount, 1 per cent. 10 days.

Gulf Refining Co., Atlanta, Ga., 19c.; discount 1 per cent. 10 days, accepted.

Standard Oil Co., Atlanta, Ga., 19.5c.; discount 1 per cent. 10 days.

Texas Co., Atlanta, Ga., 21c.; discount 2 per cent. 10 days.

Gasoline, Etc.

Camp Knox Q. M. Circular 22-19

The following bids were received by the quartermaster, U. S. Army, Camp Knox, Ky., November 28, circular 22-19, for item 1, 16,000 gallons motor gasoline; 2, 500 gallons motorcycle oil; 3, 1,000 gallons motor oil:—

George C. Peterson Co., item 1, 19.3c.; 2, 51c., accepted; 3, 44c.

Kline Motorcycle Co., item 2, $1.20; 3, $1.20.

States Oil Co., item 2, 65c.; 3, 44c. and 60c.

Stoll Oil Refining Co., Inc., item 1, 24c.; 3, 34c., accepted.

Kentucky Consumers' Oil Co., item 1, 19.25c.; 2, 61c.; 3, 57c.

Indian Refining Co., item 1, 19.7c.; 2, 55c.; 3, 52c.

Standard Oil Co., item 1, 19c., accepted; 2, 80.5c.; 3, 77c.

Atlantic Refining Co., item 1, 23c.; 2, 64.85c.; 3, 70.35c.

Fiske Bros. Refining Co., item 2, 55c.; 3, 50c.; f. o. b. Newark or Toledo, Ohio.

Gas and Oils

Little Rock Q. M. Circular 3

The following bids were received at the Little Rock air intermediate depot, Little Rock, Ark., November 26, circular No. 3, for gas and oils:—

Item 1, 2,000 gallons motor gasoline; 2, 55 gallons kerosene; 3, 55 gallons motorcycle oil:—

Fiske Bros. Refining Co., New York city, item 3, 55c.

Gay Oil Co., Little Rock, Ark., item 1, 22c.; 2, 14c., accepted; 3, 68c.

Pierce Oil Corp., Little Rock, Ark., item 3, 60.9c., accepted.

National Refining Co., Memphis, Tenn., item 1, 23c.; 2, 17c.; 3, 80c.

Standard Oil Co. of Louisiana, Little Rock, Ark., item 1, 21c.; 2, 14c.

Texas Co., Little Rock, Ark., item 1, 20c., accepted; 2, 14c.; 3, 55.25c.

Table 2

Work of the Refineries, Home Consumption, Exports and Stocks for August, 1921, in Metric Tons

Districts.	Crude oil run.	Products obtained: Benzine.	Distillate.	Lub. oil.	Residuals.	Products delivered for home consumption: Benzine.	Distillate.	Ref. oil.	Lub. oil.	Paraffine.	Residuals.	Denatured: Benzine.	Denatured: Lub. oil.	Products exported: Benzine.	Distillate.	Ref. oil.	Lub. oil.	Burnt in the refineries. Residuals.	Stocks on hand, August: Benzine.	Distillate.	Ref. oil.	Lub. oil.	Paraffine.	Residuals.
Prahova	76,778	17,843	13,406	7,553	36,617	1,939	1,076	1,387	1,452	1	22,318	1,944	2,638	1,800	10	...	30	8,596	52,867	123,007	34,448	35,517	713	13,534
Bacau	567	30	231	77	200	30	250	57	17	4	202	41	198	...	...	...	..	119	139	274	2	1,347	71	447
Dambovitza	803	156	236	58	423	42	250	28	33	..	371	41	47	132	...	...	..	167	199	392	94	433	3	466
Constantza	1,805	421	236	156	998	47	41	161	38	..	530	116	176	100	3,030	2,415	28	129	62,977	12,724	43,224	2,173	..	976
Buzau	280	133	96	90	45	1	61	...	2	10	31	134	25	...	...	...	..	20	11	398	76	642	40	100
Neamtz	32	4	15	10	2	...	16	...	3	..	5	3	...	...	...	...	..	...	1	6	...	139	4	59
Braila	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	..	...	3,776	266	...	4	..	22
Covurlui	45	6	14	2	21	15	...	19	1	..	11	...	...	...	...	...	..	...	5	2	35	27	..	102
Jasi	389	44	137	...	200	28	265	...	...	..	189	89	...	...	...	...	..	34	25	242	...	2	..	85
Ilfov	...	...	...	...	...	2	...	118	24	..	64	...	25	...	...	...	..	27	15	82	16	205	..	108
Putna	...	...	...	...	...	...	...	...	1	..	4	...	...	...	...	...	..	1	...	...	...	132	4	17
R. Sarat	...	...	...	...	...	5	52	27	8	..	5	10	6	...	...	...	..	9	...	109	17	278	36	3
Vlashca	...	...	...	...	...	11	33	...	...	..	...	...	259	...	...	80	750	...	...	678	900	1,251	..	...
Caras-Severin	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	..	...	...	...	...	...	..	...
Brasov	...	...	...	...	...	196	...	171	132	..	19	4	35	...	...	...	..	7	527	8	43	784	..	31
Totals	80,789	18,637	14,371	7,946	38,506	2,316	2,033	1,968	1,711	15	23,749	2,382	3,409	2,032	3,040	2,495	808	9,100	170,542	138,188	78,855	42,931	871	15,950

DECLINES FAR EXCEED ADVANCES IN ALL CLASSES OF OIL STOCKS

Most Weakness Shown by Issues Which Have Had the Greatest Advances Recently—Pipeline Stocks Lower

Wall Street is somewhat in doubt about oil securities just at the present time, although there is little disposition to look for a material reaction before the first of the year. The financial market has analyzed the recent advance in oil prices very carefully, and does not seem entirely satisfied with the result of its investigations. The Street has not been slow in discovering just what companies were most benefited by the great advance in the prices of crude oil, and the stocks of these companies have advanced enough to discount the fact that the end-of-the-year showing is going to be much better than it would have been had the prices not been boosted.

It becomes more evident every day, however, that the professionals of Wall Street and the public in general are one in the belief that the advance was not based upon the law of supply and demand, and for this reason there has been no rush to buy oil stocks in general, and advances have been confined to those issues about which there could be no doubt as to direct benefits resulting from higher prices for crude.

The market in oil securities last week was not exactly soft, but it was by no means buoyant, and there were many more declines than advances. In most cases the advances were not large, and even the stocks which had shown the greatest strength reacted before the end of the period. The temper of the market was most clearly shown perhaps by the actions of Standard of New Jersey common, which, after making a new high for the year at 192, closed on Thursday at 183¼, which was four points lower than its close a week before.

Standard Oil stocks have shown the greatest advances as a result of the marking up of the price of petroleum, but last week they were somewhat reactionary. It looked as if some holders were content with the profits which had accrued as a result of the advance in oil, and were willing to get out and take the chance of replacing at lower prices. At the high of the week Standard Oil of New Jersey, common, was 67.5 points higher than the low of the year, and an advance like that would encourage profit taking in any stock. There was little excitement in Mexican Petroleum during the week, and it acted very much as a well-mannered stock should act. Whether or not the war is over, the former bears in this issue were not active during the period, nor was any effort put forth to bull the stock.

The unlisted stocks gave a better idea of the real market perhaps than did those which are most closely watched by the general public. One feature of the week was a decline in the bid prices of practically all of the pipeline companies. They were weaker than the stocks of refinery companies. Indeed, the only advance of the week that was worthy of attention occured in the stock of the Atlantic Refining Co., which has so much gilt on its edges that few people dare consider it. At the end of the period 1025 was bid and 1075 asked for this stock, which was an advance of 75 points in the bid price in a week's time.

ADVANCES AND DECLINES

Every oil stock listed on the New York Stock Exchange was considered last week solely as regards its individual merits. There was no news in the market that effected the entire oil group, although there was a feeling manifest that, in a general way, the advances which had occurred had fully discounted all that was bullish in the general situation of the petroleum market.

The stocks which had advanced most the previous week were rather reactionary, and there were many more declines than advances. A number of issues, in which trading is usually active, moved very little in either direction.

Among the stocks which closed the week at a net advance were:—Atlantic, Gulf and West Indies, up ¾ point; Atlantic Petroleum, up 1⅞ points; Cosden Co., up 1 point; General Asphalt, 1½ points; Houston Oil, up ⅛ point; Indiahoma Refining, up ⅜ point; Transcontinental Oil, up ¼.

Among the declines were:—Caddo Central, off 1 point; California Petroleum, off ¾ point; Freeport Texas, off ¾ point; Invincible Oil, off ¼ point; Island Oil, off ⅛ point; Mexican Petroleum, off ⅜ point; Pacific Oil, off ⅛ point; Pierce Oil, off 1⅛ points; Pure Oil, off 1½ points; Royal Dutch, off ⅜ point; Sinclair Consolidated, off ½ point; Standard Oil of California, off 1⅞ points; Standard Oil of New Jersey, off 4 points; Texas and Pacific Coal and Oil, off ¾ point; Union Oil, off 1⅝ points and White Oil, off ⅞ point.

Having made the greatest advance among the listed oil stocks the previous week, Standard of New Jersey showed the greatest decline for the period, but during that period it made a new high for the year, and at the close was up 58¾ points from the low of the year.

EXCHANGE QUOTATIONS

	Close Dec. 8.	For year. High.	Low.	Change from Dec. 1.
At., Gulf & W. I.	31½	76	18	+ ¾
Atlantic Petroleum	22⅞	23¾	10	+1⅞
Caddo Cent. O. & R.	11⅛	19⅝	7⅜	—1
California Petroleum	43	49⅝	25	— ¾
Cosden Co.	34	44⅞	22¼	+1
Freeport Texas	14⅜	20½	9½	— ⅜
General Asphalt	65¼	78¾	39½	+1½
Houston Oil	78¼	86	40½	+ ⅛
Indiahoma Ref.	4⅜	7⅛	2	+ ⅜
Indian Ref.	9¾	15¾	7½	
Invincible Oil	12	26	5½	— ¼
Island Oil	2⅞	4¾	2	— ⅛
Mexican Pet.	112¼	167½	84½	— ⅝
Middle States Oil	15	16½	10	
Pacific Oil	45⅜	47½	27½	— ⅛
Pierce Oil	12¼	14	5¼	—1⅛
Pure Oil Co.	37⅛	39⅞	21½	—1½
Royal Dutch	48⅝	67⅞	40½	— ⅜
Sinclair Con. Oil	22¼	28⅜	16½	— ⅞
Standard Oil, Cal.	89¼	92⅜	67⅜	—1⅞
Standard Oil, N. J.	183¼	192	124½	—4
Standard Oil, N. J., pf.	112⅜	113½	105¼	+ ⅝
Superior Oil	7⅜	13¼	3¾	
Texas Co.	46	47½	29	
T. & P. C. & O.	28¾	36⅞	15¾	— ⅜
Transcontinental Oil	10⅛	13	6	+ ¼
Union Oil	18⅞	25½	15¼	—1⅝
White Oil	12	17⅜	7	— ⅞

UNLISTED SECURITIES

The most important of the unlisted oil securities showed quite as much weakness during the period as did the listed oils. Most of the stocks which were the first to advance following the advance in the price of crude oil were easier, and this was especially noticeable in the stocks of pipeline companies.

Prairie Oil & Gas was almost the first stock to jump when crude oil went up. This was perfectly natural because of the fact that this company had very large stocks of crude oil on hand. It would look, however, as if the pendulum swung a bit too far, for last week it followed the 10-point decline of the week before with another 10-point break, and if this means nothing else it would seem to mean that well posted oil men do not expect any further advances in the price of crude, for the people who trade in stocks of this character are very well informed indeed upon the situation in the petroleum market.

There were some advances in unlisted oils during the period. The most remarkable was a 75-point advance in the bid price of Atlantic Refining. This was about the only advance in the entire list, however, and many of the strongest issues showed considerable declines.

Some of the declines in bid prices for the period were as follows:—Atlantic Lobos, off 1 point; Buckeye Pipeline, off 1 point; Cheseborough Manufacturing Co., off 5 points; Eureka Pipeline Co., off 6 points; Illinois Pipeline Co., off 6 points; Imperial Oil Co., Ltd., off 4 points; Indiana Pipeline, off 2 points; New York Transit Co., off 4 points; Ohio Oil Co., off 5 points; Prairie Oil & Gas Co., off 10 points; Prairie Pipeline Co., off 9 points; Southern Pipeline Co., off 9 points; Southwest Pennsylvania Pipelines, off 1 point; Standard Oil of Kansas, off 5 points; Standard Oil of Nebraska, off 10 points; Standard Oil of New York, off 18 points; Standard Oil of Ohio, off 10 points; Swan & Finch, off 3 points; Vacuum Oil Co., off 5 points, and Washington Oil Co., off 2 points.

The dividend showing of these Standard Oil companies for the year has been good. But good news is never bullish after it is out. The dividend showing for 1921 had been discounted some time ago, and the action of the market at this time is a result of the opinion as to what the showing for next year is going to be.

STANDARD OIL STOCKS

	Dec. 8 Bid.	Dec. 8 Ask.	Dec. 1 Bid.
Atlantic Lobos Oil Co.	8¾	9¼	8¾
Atlantic Lobos Oil Co., pf.	40	42	41
Atlantic Ref. Co.	1025	1075	950
Atlantic Ref. Co., pf.	112	114	112
Anglo-Amer. Oil, Ltd.	20⅝	20¾	21⅛
Borne-Scrymser Co.	320	340	320
Buckeye Pipeline	82	84	83
Chesebrough Mfg. Co., com.	180	190	185
Chesebrough M. C., cons., pf.	104	106	104
Continental Oil Co.	120	123	119
Crescent Pipeline Co.	30	31	30
Cumberland Pipeline Co.	125	135	125
Eureka Pipeline Co.	78	82	84
Galena-Signal Oil Co. pf. new	100	105	103
Galena-Signal Oil Co., pf. old	100	105	104
Galena-Signal Oil Co., com.	40	43	40
Illinois Pipeline Co.	154	158	160
Imperial Oil Co., Ltd.	104	106	108
Indiana Pipeline Co.	80	82	82
Int. Petroleum Co., Ltd.	16¼	16½	16½
National Transit Co.	29	30	29
New York Transit Co.	144	148	148
Northern Pipeline Co.	95	100	98
Ohio Oil Co.	273	278	278
Penn.-Mex. Fuel Co.	16	18	18
Prairie Oil & Gas Co.	560	570	570
Prairie Pipeline Co.	225	230	234
Solar Refining Co.	355	375	355
Southern Pipeline Co.	80	83	89
South Penn Oil Co.	220	225	220
Southwest Penna. Pipelines	53	57	54
Stand. Oil of Ind., $25 par	8⅞	8¹⅞	8⅝
Standard Oil Co. of Kan.	570	580	575
Standard Oil Co. of Ky.	435	445	435
Standard Oil Co. of Neb.	160	170	170
Standard Oil of N. Y.	370	375	388
Standard Oil Co. of Ohio	390	400	400
Standard Oil Co. of Ohio, pf.	111	113	111
Swan & Finch Co.	37	43	40
Union Tank Car Co.	96	100	96
Union Tank Car Co., pf.	101	105	101
Vacuum Oil Co.	322	328	327
Washington Oil Co.	33	38	35

ON THE CURB

It was not a very active week in oils on the Curb. Some of the purely speculative stocks held their own, but among these best of the issues traded in in this market there was little strength shown. Cities Service, common, which is looked upon as the market leader, showed a net decline for the week of 2 points. It was under no particular pressure, and in fact in this market as on the "Big Board" the bears are making no particular drives against oils at this time. The selling is largely liquidation.

Some of the stocks which showed net advances for the period were:—Allen Oil, up 10 points; Key Ranger, up 5 points, and Texas Oil & Light, up 1 point. These are among the little issues, and are traded in in cents. Carib Syndicate showad a net advance of ⅛ point for the period; Gilliland Oil, off ¾ point; Meridian Petroleum off 3 points; Pennock Oil, off ⅜ point.

Elk Basin closed the period just where it was a week before. Federal Oil was off ⅜ point; Merritt Petroleum ½ point; Salt Creek Producers, ⅝ point; Sapulpa Refining Co., ¼ point; Simms Petroleum, ⅛ point and Skelly Oil, ⅞ point.

Among the "cents a share" stocks "Y" Oil and Gas showed the greatest weakness, and closed the period at a net loss of 25 points. American Fuel Oil was off 9 points; Boone Oil, 1 point; Boston-Wyoming, 4 points; Engineers Petroleum, 10 points; Noble Oil and Gas, 1 point, and Omar Oil and Gas, 16 points.

CURB QUOTATIONS

	Close Dec. 8.	For week. High.	Low.	Change from Dec. 1.
*Allied Oil	3	4	3	
*Allen Oil	85	85	78	+10
*American Fuel Oil	51	60	49	—9
*Boone Oil	25	29	24	—1
*Boston-Wyoming	80	82	80	—4
Carib Syndicate	4¾	4¾	4½	+ ⅛
Cities Service	219	220	215	—2
Do., banker's share	23¾	24	23¾	— ⅝
Do., pf., B.	..	59	58	
Creole Syndicate	1¾	2¼	1¾	— ¾
Elk Basin	7½	7⅝	7⅜	
*Engineers Petroleum	54	61	53	—10
Federal Oil	1⅛	1⅛	1⅛	— ⅜
Gilliland Oil	4½	5¼	4½	+ ¾
*Hudson Oil	11	12	11	
*Key Ranger	85	90	82	+5
*Lyons Petroleum	75	77	70	—1
Maracaibo	25⅞	26½	24½	+1⅞
*Mariand Oil	..	2½	2	
Meridian Petroleum	17	17	15	+3
Merritt Oil	10	10½	10	— ½
Mexico Oil	1⅛	1⅛	1⅛	
*Noble Oil & Gas	13	14	13	—1
*Ohio Ranger	17	8	7	
*Omar Oil & Gas	66	78	66	—16
Pennock Oil	6¼	6¾	5⅞	+ ⅜
Salt Creek Producers'	14⅛	14⅜	14	— ⅝
Sapulpa Ref.	3⅞	4	3⅝	— ¼
Simms Pet.	11	11½	10⅜	— ⅛
Skelly Oil	5⅝	5⅞	5⅝	— ⅛
*Texas Oil & Light	74	75	72	+1
*"Y" Oil & Gas	47	71	43	—25

* Cents per share.

THE OUTLOOK

There is little chance of any shortage of oil in this country next year, in spite of the fact that some brokers who are trying to boom certain oil stocks claim that there is. The great question is whether or not the demand will be sufficient to take care of the supply at present prices. As to whether it will or not, there is a wide difference of opinion among men whose opinions are worthy of consideration. The bullish news based upon the recent advance in crude has all the effect on prices that it can have. The dividends of the companies which pay dividends for 1921 are all matters of record. There is no disposition to expect lower prices for oil until the end of the year's inventories are in. The public will hardly care to enter the market speculatively in advance of the Christmas holidays. For the next few weeks a rather quiet market in oil securities seems the prospects.

It is always the part of wisdom to watch carefully the action of the unlisted Standard stocks, which will be benefited at once whenever there is any improvement in the petroleum market. The men who trade in these issues are much better posted upon petroleum market conditions than are the usual run of traders who buy and sell on the Stock Exchange or on the Curb. Last week these stocks were reactionary. There will hardly be a boom in the other oils until there is another rally in these issues.

FINANCIAL NEWS NOTES

The Tidewater Oil Co. has declared the usual quarterly dividend of 2 per cent., payable December 30 to stock of record December 20.

The Associated Oil Co. has declared its usual quarterly dividend of $1.50 a share, payable January 25 to stock of record December 31.

The Southwest Pennsylvania Pipelines has declared a quarterly dividend of $1 per share, payable December 31 to stock of record December 15.

The Indiana Pipeline Co. has declared the usual quarterly dividend of $2 a share, payable February 15 to stock of record January 24, 1922.

The report of the Superior Oil Corporation for the three months ended September 30 shows a gross income of $310,233 and a net income of $302,099.

The Mountain Producers' Corporation has declared the regular quarterly dividend of 2 per cent., payable January 2 to stock of record December 15.

It is expected that as soon as possible an application will be made to list the new preferred stock of the Pure Oil Co. on the New York Stock Exchange.

The Middlewest Oil Co. has declared a quarterly dividend of 4 per cent. on both the common and preferred stocks, payable January 16 to stock of record December 31.

The officials of the Standard Oil of New Jersey deny that that company plans a stock dividend. A story to this effect gained enough circulation to bring out a denial.

The California Petroleum Corporation has declared the regular quarterly dividend of $1.75 a share on the preferred stock, payable January 2 to stock of record December 2.

During the third quarter of 1921 the Imperial Oil Co. earned, according to the figures of its officials, $615,750 gross and $430,669 net. During the period the company distributed $154,078 in cash dividends.

B. G. Dawes, president of the Pure Oil Co., says that the new issue of $4,300,000 preferred stock now being offered the public will relieve the company of the necessity of new financing for its recent purchase of properties in the Mexia field.

It is announced by an official of the Transcontinental Oil Co. that it has made an arrangement by which the Standard Oil of California is to develop a large part of the holding of the Transcontinental Co. in Colombia for the joint account of the two companies.

The Equitable Trust Co., of New York, has been informed by cable that the Shell Transport Trading Co., Ltd., has announced the interim dividend of two shillings per English share, payable in London on January 5. This is equivalent to four shillings per American share.

A Pitsburgh telegram said that there would be a meeting of the Tidal Osage Oil Co.'s directors on December 22 to vote on an increase in the common stock from 500,000 shares to 1,000,000 shares of no par value. This is the old Guffey-Gillespie company now under the control of Tidewater interests.

The bankers syndicate which acquired $4,300,000 8 per cent. convertible preferred stock of the Pure Oil Co., offered ot at 100 and accrued dividend, and after three days announced that the entire issue had been sold. The stock is convertible into common on the basis of two shares of common for one of preferred any time before July, 1923.

Some brokers who are urging their customers to buy oil stocks refer constantly to the high prices reached by these securities duri.g 1920. The 1920 high for Middle States, for instance, was $71¾; for Sinclair Consolidated, $48¾; for Pure Oil, $50⅞; for Pierce, $23¼; for Invincible, $47¼, and for Simms Petroleum, $73½. Seeing these figures quoted brings sad memories to many thousands of investors.

A meeting of the stockholders of the Transcontinental Oil Co. has been called to be held in Pittsburgh on December 19 for the purpose of authorizing the issuance of $10,000,000, first mortgage and collateral trust sinking fund, ten year, 8 per cent. gold bonds. It is proposed by the issue to make possible the refunding of current debts and the obtaining of enough money to push development work. It is said that the Standard Oil of California will take $2,000,000 of the new issue, and that this company will undertake to develop lands in Montana held by the Transcontinental company, as well as a large amount of its acreage in Colombia, South America. It is reported that the officials and the large stockholders of the Transcontinental Co. have agreed to take half the new issue. If they do the $5,000,000 coming from them with the $2,000,000 from the Standard of California will take care of current indebtedness, and the remaining $3,000,000 of the new issue will be allowed to remain in the treasury of the company against future needs. The sinking fund of the new bonds will not start until 1925 and will be at the rate of 5 per cent. per annum.

AMERICAN PETROLEUM INSTITUTE HOLDS AN OPTIMISTIC MEETING

(*Continued from page 13*)

larly in recent years with the industry increased to such proportions that very large capital is necessary to carry it on economically and with any assurance of success. The finding of a remedy for these violent price fluctuations is one of the most important problems confronting the industry today.

Regarding Mexico, nearly every State in Mexico has oil or indications of oil in varying degree. The northern districts have been practically ruined recently by the incursion of salt water in the wells, and the southern part of the field continues to furnish a large production, but it is probable that salt water will make its appearance there at no distant date.

That other profitable pools, or fields, will be discovered in Mexico is all but certain, and that the country will continue to be a considerable factor in supplying the world's needs of oil after the exhaustion of the present producing areas is probable.

One of the oldest and most successful producers in the United States predicts that there is more oil in South America than there is in the United States. There has been entirely too much pessimism indulged in about the supply of crude oil for the future.

An intimate personal account of recent occurrences in the industry was given by J. D. Collett, representing the Mid-Continent Oil & Gas Association, who said in part:—

IMPRESSIONS OF AN INDEPENDENT OPERATOR

By J. D. Collett

The famous character in the opera "Mikado" who could enumerate at length his various occupations and titles has no advantages over a small independent operator when it comes to occupations.

He is primarily general manager and head of the land and leasing departments, and at times secretary, treasurer and general superintendent. As chairman of the board of directors, and constituting, as he does, the whole blooming directory, he has many serious problems to solve, and when the board has solved them he has to carry out the plan, and the worst part of it is that if the plans miscarry or the scheme fails he has nobody to blame. He is the goat.

Stock Promotion Schemes

The oil business in general has at various times suffered severely from some very erroneous opinions that exist in the public mind in reference to it, and I think more false impression has been created within the last three or four years than in any similar period in the history of the industry. During this period there have been organized great numbers of legitimate companies, based upon sound business principles; managed by men who had the ability to succeed in their undertakings, and many of these concerns are today upon a firm foundation and are expanding in a normal and healthy manner, and will be important and virile factors in the business in the future. During the same period practically every old operating organization has found it necessary to either make substantial increases in their issues of capital stock or find a market for bond issues to enable them to keep pace with the rapid growth of the business and make the necessary additions and extensions.

The public has had a fair and reasonable opportunity for profit on their investments in this class of institutions, and I see nothing to indicate that their chances of future success will not be equally good.

On the other hand, it has been a matter of great surprise that the public has also absorbed with greater avidity an unbelievable amount of totally worthless stock, and it is from the promoters of this class of companies that the average investor has acquired his impressions of the business.

The financial grief that has resulted from these ill-advised investments has created prejudice and distrust in the minds of the unfortunate losers and has put the oil business in a decidedly false light.

Crude Oil Prices

Like every other man in business who is seriously interested I have been trying for the past few years to keep sufficiently familiar with general business conditions and with statistics in my own line to form some idea of the trend of affairs and shape my plans accordingly. Ordinarily a business training of a number of years in several lines should enable one to profit by experience and to assume that certain set conditions would produce certain results, and that history would continue to repeat itself. This general theory seemed to work very well up to the beginning of the World War, but since that time history does not appear to have found any precedent to follow, or at least I have not been able to discover the code.

When crude oil was bringing the high prices a little less than a year ago I had been able to figure out to my satisfaction how it reached the price, but I could not see what was holding it there. However, it did not start down when I thought it was due for a slump and I finally let myself believe that my theory was at fault and that the old nigger was right when he said that he believed that "Mr. Supply and his partner, Mr. Demand, must have busted up their partnership."

"Working Conditions"

An item which to my mind is just as important as the matter of wages is the so-called "working conditions." It seems to me that the wrong name is applied to these sets of rules and regulations and that they would be more properly termed "non-working conditions," since the effort is apparent in many of them to stipulate and enumerate what shall not be done.

I have never seen any regulations or rules which provide that the employers' interest shall be safeguarded, that he shall be assisted in furthering his plans or any other stipulation that tended toward co-operation. I cannot imagine the attainment of true efficiency in a working force unless the efforts of that force are directed mainly or wholly toward furthering the interests of the man or institution that pays their wage.

Freight Rates on Petroleum

The oil business is also carrying another burden that should be lightened, and that is the matter of freight rates on crude and refined products and on oil field supplies. In looking over some recent comparisons of freight rates in effect now and those effective prior to June, 1918, as affecting oil field products I note that the general average of increase in the rates ranges from 70 to 100 per cent., and there are several instances in Mid-Continent territory where the increase is nearly 200 per cent., and at least one rate that I noted of 240 per cent. increase.

There is apparently an effort being made to bring about a reduction in some or all of these rates, and it is evident that it is not going to be accomplished without some reduction in the railroad wage scale or working conditions.

With these rapidly changing conditions, sudden reverses and wide fluctuations in prices (sometimes explainable and sometimes apparently unwarranted) it has been most difficult to steer a safe business course and not run into some snags.

Optimistic Over Outlook

I would not have you get the impression that I am pessimistic as to the ultimate future, for such is not the case, but, on the contrary, I am optimistic as to the final outcome of our existing business difficulties, but that result is not going to be attained without encountering some grief and hardships on the way.

I do not think that the oil business is at its zenith and on the wane, as some statisticians have endeavored to prove, but, on the contrary, I believe it is much nearer the kindergarten stage than it is the college period.

I am firmly of the opinion that the Mid-Continent territory of Kansas, Oklahoma, Arkansas, Louisiana and Texas will continue to furnish surprises in new production for many years to come, and that improved methods will enable producers to work over old territory at a profit and get wonderful results from deep drilling in pools now known only for their shallow sands.

I am convinced that the refining end of the business will make practically as much progress in the future as it has in the past, which means that the intelligence and skill of the scientists engaged in that department, backed by the vision and forethought of the executives, will continue to find new and valuable derivatives of petroleum until the number and variety of them will rival the astounding results that have been obtained from coal tar.

Value of Trade Associations

It has been a source of satisfaction to observe the growth of trade organizations in this country, and it seems certain that they will continue to expand and extend their facilities for usefulness to their members.

The Mid-Continent Oil and Gas Association has been an active factor in safeguarding the interest of the oil men in that section, and had it not been for the energetic and persistent work of its officers the industry today would have been staggering under other loads and would be hampered and harassed by many other troubles which have been put behind us.

I think the greatest value of the associations lies in the personal contact of the competitors. Many a time a grievance that you have been nursing against some fellow will disappear when you meet him because it was imaginary and not real. And many times men who in the conduct of their respective lines of business, having always viewed every matter from opposing angles, worked up a feeling of distrust and dislike for each other have been thrown together in their trade associations and set to work together on some matter for the common good of the business and have suddenly discovered that no issue existed between them. That each was in fact a real man and a gentleman.

In conclusion, I would suggest that one of the greatest needs of the oil business today is to induce more young men to educate themselves along lines of usefulness in this industry to the end that all of the departments (in the field work particularly) may not be only managed by well educated men, but may be operated throughout by men who have been technically trained for their particular work.

Last on the program of the session was an address on "Industrial Relations," by H. F. Perkins, vice-president, International Harvester Co.

FOURTH GENERAL SESSION

Wednesday Evening, December 7

At the general session, Wednesday evening, Harry L. Horning, president, Waukesha Motor Co., read a paper on "The Automotive Industry and Oil," in which he brought out many important features of the close inter-relation of the two.

Paul Shoup, president, Pacific Oil Co., spoke on "The Pacific Coast," a subject enhanced in interest by the recent report of the Federal Trade Commission having to do with conditions in the oil industry in that territory.

R. L. Welch, general secretary and counsel of the Institute, occupied the remainder of the evening's program with an analysis of conditions in the petroleum markets in the recent past. His interpretation of market occurrences was saliently as follows:—

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OIL: THE LAW OF SUPPLY AND DEMAND

By R. L. Welch

The violent changes in oil prices in my judgment are due not to manipulation, but to the lack of it; due not to combination, but the lack of it; due not to the control of production and consumption, but to the lack of it—due to the normal operations of the law of supply and demand—a law which is not an ideal thing from every aspect, any more than is the competitive system an ideal thing from every aspect.

Somebody may ask as to the future. It seems to me that there is only one thing as to the future which can remain in the realm of certainty, and that is that the current excess or the current deficiency of oil will be the important factor in determining the level of prices. Whether we assemble the facts as to production, as to consumption, as to supply or as to demand, however important they may be isolated and unrelated, the one thing, and in fact the crucial thing, which must be deduced from them is their relationship, that is the simple question whether an oversupply or an undersupply exists for a sufficiently long period of time to make itself felt throughout the entire industry.

In the few months during which prices changed so greatly there coincided in point of time with the highest prices a large draft on stocks; with the lowest prices, a great accumulation of stocks; and with the price change upward, a draft on stocks.

If these contemporaneous movements of stocks and prices together do not disclose the normal and natural operations of the law of supply and demand, what could disclose them? It would seem as though the mere statement of these profound and rapid changes in the relationship of the supply and the demand would be a sufficient answer to those persons who calmly and in good faith would apply the same principles of economics to the oil business that they would apply to the fluctuations in the market for wheat, cotton, corn, oats, cattle or any other of the world's great commodities.

Robert Welch

Facts as to Competition

Competition has been so keen to get the oil out of the ground that the one serious question is not whether there is competition, but rather whether there is too much. The number and capacity of the refineries have shown a rapid increase, and the development of every oil field has meant new refineries and new competitors.

On every hand are competitors ready and willing to buy, sell and develop oil properties and crude oil; to transport, refine and market crude oil and refined products. What company is there in the oil business which would have even momentary security in its business if it were not ever watchful and ever active? And, finally, into what business in America have more new men, more new capital come than into the oil industry? The integration and combination of this vast force of competitors would constitute a gigantic task such as has never been attempted by the most daring and farseeing of financiers.

Even if all of these thousands of individuals and companies were integrated, who is there in the world with sufficient insight to gauge the other factor necessary to know in order that an equilibrum could be maintained, viz., the consumption demands of the country, for is it not obvious that he who would attempt to control production must attempt to control it in relation to consumption? Who is there with the vision to have predicted that domestic consumption, including exports, would jump from an annual rate in January, 1919, of 324,000,000 barrels to 575,000,000 barrels in August and September, 1920; that it would drop in February, 1921, to 421,000,000 barrels; and that, having dropped to such a basis, it should in September, 1921, reach 605,000,000 barrels, a mark unprecedented in the history of the petroleum industry?

Financial Task of Handling Excess Production

In the first place, somebody would have had of necessity to supply enough money to purchase 75,000,000 barrels of oil at, say, $3 a barrel, or a total sum of $225,000,000, not counting anything for pipeline, gathering, storage and other charges, which would easily bring the total up to $325,000,000. In addition, there would be involved obviously speculative risk, business discretion, regard for the law and for the public.

The assumption that taking up the surplus oil at, say, the tidy sum of $650,000,000, which nobody had and which nobody could get, would stabilize the market, is based on the further assumption that the industry could continue to obtain from the public the prices for the products which it was receiving prior to the accumulation of the surplus.

Decline in Refined Product Prices

Basic crudes did not decline during the latter months of 1920, but they did decline precipitously in January and February, 1921. It therefore is important to inquire whether during the latter months of 1920 there were any declines in the market prices of refined products which eventually would force down the price of crude.

The price declines in fuel oil between September, 1920, and December, 1920, totaled $245,000,000 on an annual basis. Contemporaneously lubricating oil began to slip in price and during the period of October, November and December the decline in value on an annual basis approximated $100,000,000. Gasoline and kerosene also commenced to weaken and by the first of January the oil industry was carrying a loss of revenue on these products on an annual basis approximating not less than $345,000,000. Up to this time there had been no decline in crude price. In January and February the decline in all of the products was so profound that they approximated on an annual basis not less than $250,000,000 in January and $570,000,000 in February.

Fuel oil, from the very necessities of the producing and refinery situation, continued to be produced and actually increased in quantity during the first quarter of 1921 over the corresponding quarter of 1920, while coal production could be and was diminished in accordance with the demand.

Billion Dollar Shrinkage

Under such circumstances what could have occurred but a frenzy of price-cutting? Reverting to the oil situation, it is thus seen that in the fall of 1920 and the early winter of 1921 the revenue of the oil industry from the public on an annual basis had shrunk more than $1,000,000,000. One grasps the significance of this figure when he realizes that the total value of the 1920 production on the basis of the highest crude prices was approximately $1,400,000,000. This shrinkage in revenue, in my judgment, was caused primarily by the commercial depression through which we were then passing. It was this pressure which caused the precipitous decline in the crude markets of the United States. The decline in revenue caused by competitive price-cutting continued throughout the entire summer of 1921, and the loss of revenue from the public at all times was well in advance of the decline in the price of crude oil.

The most cursory examination of the losses of revenue caused by competitive price-cutting will show that it was the constantly diminishing volume of revenue which literally pressed down the value of mid-continent crude to $1 per barrel.

It is therefore evident that to have sustained prices against this ebb tide during this period of crises would have required fiscal and financial operations impossible of attainment by any industry.

Regarding Recent Advances

The question has been raised in many quarters as to why the recent advance took place and as to whether the fundamental conditions in existence justified it. During the months of July, August and September there was a practical equilibrium in the supply and demand for oil, according to government figures, and, in fact, during those months a draft on stocks occurred. In the same period the domestic production in the United States did not equal the domestic consumption, whereas in February, 1921, on an annual basis we were producing in the United States 150,000,000 barrels pere annum more than we were consuming in this country. August, 1921, was the greatest month for consumption in oil history.

The aggregate increases in crude oil prices during September, October and November on an annual basis approximated $330,000,000. Taking the country as a whole, fuel oil prices reached their lowest ebb in June, 1921. In October the increase became profound, approximating $[illegible],000,000 on an annual basis. Lubricating oil prices reached their lowest level in August, 1921. In October and November the increase on an annual basis approximated $50,000,000. Gasoline and kerosene continuously declined in price from October, 1920, to October, 1921, the increase in price of these commodities aggregating $200,000,000 on an annual basis. The total increase for all products was therefore, roughly, $350,000,000 to $400,000,000 per annum.

Thus it is quite apparent that the markets for finished products which lagged behind the declines in crude, have now been leading the advances in crude. In the former instance the money from the public diminished and forced prices down, and in the latter the flow of money from the public increased and forced prices up. Broadly speaking, taking the nation as a whole, and considering the period commencing July 1 to date, the oil industry has been going through a period in which there has been a market to the public for every barrel of oil produced. What could be more normal or more natural than that prices should rise from a level which was obviously below the cost of production?

FIFTH GENERAL SESSION

Thursday Afternoon, December 8

The final session of the Institute was held Thursday afternoon. The first speaker was Louis C. Sands, vice-president and general manager, Oil Wells Supply Co., who spoke in part as follows:—

RELATION OF SUPPLIES TO THE PETROLEUM INDUSTRY

By Louis C. Sands

We now know that our interests and duties extend beyond the confines of the United States; that the oil found here in sufficient volume to meet all past needs must be supplemented by that to be found in other parts of the world. We are beginning to realize that no nation can safely attempt to monopolize the oil resources of the world, for national monopolies are not national blessings whether it be a place in the sun to the exclusion of others, the trade of Asia or the garnering of oil preserves.

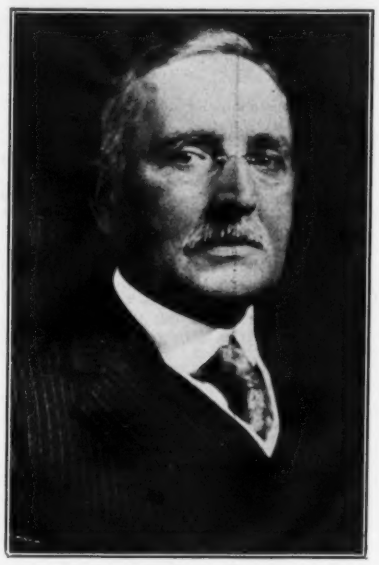
We want our share only and we stand ready in all legitimate ways to aid in the world's production, and the manufacturer of supplies will play no small part in the great program for national and international advancement through co-operative endeavor.

The oil well supply business is an integral or inseparable part of the petroleum industry. Many misunderstandings have arisen, that is, the slight variation in price as between the great producing companies and the small individual operator. Ought it not to be considered in the broad experience of the industry that a higher cost to the small producer would inevitably work to the ultimate loss of the larger factor? The essence of the problem lies in reducing the cost of the finished product.

The war with its consequent demand for material of all kinds brought about a condition in which the even flow of material was checked, disturbed and distorted. Elements foreign to the trade were introduced, which eventuated in serious loss to many and a constant irritation and added expense to the entire industry.

I refer to the so-called bootlegging in the trade. There never was a time during that period in which the manufacturing facilities of the country were not adequate to meet the demand, and yet the question of supply became so serious that the government threatened to take over the manufacturing plants and allocate the distribution of their product. Strenuous efforts were made to overcome this evil, but the irregular trader had forced himself on the program by promises to the buyer of relieving a situation for which he was largely responsible. A word of warning is not amiss and should be clearly understood. We are on the eve of an era of expansion in the trade.

The rebound from the past year's depression will be more than compensated in the constantly growing market for petroleum and its products. Keep the trade for supplies in its normal channels and refrain from hoarding and there will be an ample flow of material to meet all demands.



Courtesy Writers' Press Assn.

Louis C. Sands

At an earlier session a paper on a similar subject had been presented by J. R. Stockton, purchasing agent, Producers & Refiners' Corporation, and vice-president, Purchasing Agents' Association, of Tulsa. The salient points of Mr. Stockton's paper follow:—

STANDARDIZATION OF OIL COUNTRY SUPPLIES

By J. R. Stockton

The oil producing business is rather strikingly an individualistic business. From the day a man takes his first wildcat lease he gets the attitude of "To thunder with the other fellow; I must get mine while the getting is good." How strong this tendency is is best evidenced by the trials and tribulations of the mutual benefit associations among oil producers. The same spirit has seemingly, and naturally, passed to the manufacturers of oil well supplies, tools and equipment. The lines of machinery and equipment made by the various companies have been developed very largely for individual merit with little or no apparent effort at standardization or regard for the customer.

I am told that one company recently held a conference of its representatives at an expense of over $60,000 solely for standardization within its own line. And in talking rig iron standardization the other day with a salesman for one concern I was informed that there should be no difficulty whatever in the matter; all that is necessary is for all operators to buy his company's irons exclusively. I am happy to say that the officials of his company take a very different attitude, and are quite active and broadminded in the rig iron movement.

Lack of Co-ordination

There has been a noticeable lack of coordination between the manufacturers and the operators, the fault lying fully as much with one as the other. The need for a broader and more comprehensive standardization has long been recognized, but those most vitally interests have in this, as in many of their other interests, played the great American game of "passing the buck."

Ways of Reaching Standardization

As a general thing standardization is arrived at in one of three ways.

First—Some manufacturer or dealer produces an article of such excellence, or pushes its sales so hard, that he is able gradually to have it accepted as standard. An example is the cable tool joint just referred to, the history of which would be interesting if we had time to go into it now.

Second—Either because of its availability or the lack of something better an article becomes so generally used by the workers in an industry that they will hardly accept a substitute, and so the article becomes standard. An example in the mid-continent field is the Trimo wrench. A more common example is the keyboard of a typewriter.

Third—By conference between the manufacturers and users for the particular purpose of arriving at standards. Much has been done in this manner in most lines of business. In fact, the United States largely owes its commercial development to such standardization. But unfortunately very little has been done in this way regarding the equipment and supplies which are peculiar to the oil country.

A governmental touch was given to the meeting by the appearance, as a speaker, of Hon. Edward C. Finney, first assistant secretary, Department of Interior. His subject was one of timely interest; the essential portion of his remarks follow:—

CO-OPERATION OF FEDERAL GOVERNMENT IN DISCOVERY AND PRODUCTION OF PETROLEUM

By Hon. Edward C. Finney

I feel that an attempt by me to instruct the learned and experienced members of this Institute on any subject pertaining to the oil industry is like "carrying coals to Newcastle," or like a student lecturing to his professors. However, as I have had close connection with the administration by the Interior Department of the government oil lands, a brief sketch of laws, past and present, and a statement of our desire and efforts to co-operate in the development of oil may not be amiss.

Placer Mining Laws

The placer mining laws, under which one man might locate 20 acres and eight men might locate 160 acres, were enacted in 1870-1872. A legal lapse occurred August 27, 1895, when Secretary Smith held that oil was not a mineral and could not be acquired under mining laws.

Acting Secretary Ryan put the train on the track again in November, 1897, when he ruled that oil is a mineral. Since that time the Interior Department has not wavered in its construction of the law, but Congress made assurance doubly sure by the act of February 11, 1897, declaring lands chiefly valuable for oil subject to placer entry. But for many reasons the placer mining law was unsuited to and of little protection to oil development. An era of contests, withdrawals, charges of technical frauds and discouragement followed, ended, I hope, by the enactment of the general leasing law February 25, 1920. That the people are taking advantage of this law is shown by the fact that in twenty-two months there have been filed between 11,000 and 12,000 applications for permits and leases in eighteen States and in the Territory of Alaska. To date nearly 5,000 prospecting permits have been issued, as well as 150 leases to producing properties, on which there are some 600 oil and gas wells. Many other leases are in course of preparation.

Petroleum Work of Federal Bureaus

It is unfortunate that too few people know of the many lines of petroleum work pursued by the Federal bureaus or realize the character of the field investigations and reports constantly being issued by the government departments. Geological investigations are carried on in remote and unproved regions; studies are made by engineers in the new oil fields; experiments are carried on in the refineries and in manufacturing plants, and investigations are made for the more efficient utilization of petroleum products, as, for example, the efficiency of gasoline in the carburetor of the automobile.

Hazard of Wildcatting Lessened

Through the agency of the United States Geological Survey, the Federal Government has

lessened the hazard of wildcat drilling. Many leading petroleum geologists now with American oil companies received their fundamental training in the Geological Survey. The soundness of their training has been demonstrated through the many oil fields that have been discovered by the oil companies acting upon their geological advice. In addition to training petroleum geologists and providing a leadership in that great science, the Geological Survey has furnished the American oil men with excellent geological and topographical maps.

Increased Recovery of Oil

The government, through the Bureau of Mines, is carrying on many lines of endeavor destined to increase the recovery of oil from known fields, decrease the losses during production, transportation and manufacture, and add to the useful work which each unit of oil may do by improving the efficiency of consuming equipment.

With the exception of the supervision of drilling and production operations on Federal lands, the Bureau of Mines has no police power to require the adoption of most improved practices. But the bureau does not want such power, as it is felt that in the end more good can be accomplished when working upon a co-operative basis with the industry. The open-mindedness of the American oil men has resulted in conspicuous successes in this kind of work by the government when otherwise failure might have resulted.

Perhaps the greatest good is accomplished by the bureau in transplanting a good practice followed in one area to another where such practice is not employed. No fields for work are chosen in which the development methods or other conditions are such that ordinary methods are expensive and wasteful. The engineers make intensive studies of the various field conditions and based upon careful investigation, a knowledge of practices in other fields, and good engineering, they are often able to offer valuable advice to operators. In some cases operators have requested bureau engineers to take charge of the repair of wells in bad condition.

Work on Storage Losses

In addition to the problems connected with the drilling for and production of natural gas and petroleum, government engineers are engaged in work on evaporation of oil in storage and transit. A few years ago few oil men fully appreciated the quantity of oil lost by evaporation. One engineer in three years' work has shown that these losses are very large; that they are made up of the lightest and most valuable products of petroleum, and that their continued neglect is both unbusinesslike and extravagant. The results obtained by this engineer are sound, for they were made on oil company's own tank, and show not only a decrease in the quality of the crude, but also a corresponding volumetric loss. The shrinkage discovered cannot be denied.

The government engineers co-operate with States, municipalities and private associations to further the work of conservation. Working in agreement with the State of Louisiana, an investigation and report has been made on the Monroe gas field. The startling disclosures of stupendous natural resources in that area have resulted in the establishment by far-seeing and experienced men of a large enterprise whose purpose is to make available those resources to the public.

The recognition of the government's oil work is shown by the fact that outside agencies have contributed sums of money to the Bureau of Mines for its work in engineering and conservation. The State of Oklahoma contributes annually the sum of $37,500, the State of Colorado $10,000, the State of Utah $3,000, and until recently a group of oil operators in the Rocky Mountain States at the rate of $30,000 per annum. In addition there are constantly being received smaller contributions from various interested sources for the furtherance of special pieces of work.

In closing, let me assure you as representatives of the petroleum industry that the government desires to co-operate with and assist American oil men in every possible way. With scientific bureaus of unquestioned ability, a diplomatic department whose earnest desire to care for American interests is being manifested, a patriotic oil industry of tried and proved veterans, represented by the American Petroleum Institute, I feel safe in predicting that America will maintain her eminent position in oil as well as in other phases of modern civilization.

The formal program of the session concluded with an address on "General Business conditions in the United States," by Harry A. Wheeler, vice-president, Union Trust Co., Chicago.

THE ANNUAL DINNER

Thursday Evening, December 8

If such a thing were possible, greater interest was centered in the post-prandial speaking at the annual dinner than in the very able addresses delivered at the several sessions. It is true that the dinner speakers dealt with larger topics—and they were men of broad gauge. Col. Robert W. Stewart, chairman of the board, Standard Oil Co. of Indiana, was toastmaster and proved a past master in that role.

A clear insight into the future was evinced by Harry F. Sinclair, chairman of the board, Sinclair Consolidated Oil Corporation, who spoke in part as follows:—

LOOKING AHEAD

By Harry F. Sinclair

There is plenty of petroleum, and always will be. Exhaustion of the world's suply is a bugaboo. In my opinion, it has no place in practical discussions. The great question we are confronting is this: Is America willing to pay the price for an adequate share of the world's supply?

When I say that America must "pay the price," I refer not merely to market quotations for gasoline, lubricating and other petroleum products, and yet as these quotations are of fundamental importance it may be well to treat them at once.

Petroleum prices in 1921 on an average have been too low. In my opinion they will average much higher in 1922 than in 1921, and may average higher than ever before in the history of petroleum.

Taking a longer view, I am confident that petroleum prices must gradually work higher. Naturally, there will be periods of depression, but in the long run petroleum will command prices which more nearly reflect its service value.

While America is the chief consumer of petroluem products, the day is coming when the collective requirements of other countries will far exceed our own. America is still the chief producer of petroleum, but the day is coming when American fields will not be the largest producers and when American refiners who did not fortify themselves in foreign fields will be forced to take a minor place in the refining industry of the world.

America Must Act

Unless America is willing now to "pay the price" of preparedness, she will lose her position of petroleum supremacy, and the nationals of other countries will force her to "pay through the nose."

In the last six years we have been drilling an average of about 26,000 new wells each year, of which about 7,000 were gassers or dry holes. Even disregarding the cost of dry holes, this means we are spending more than $300,000,000 annually in new drilling in order to keep pace with the demand.

But America must have oil. If she cannot get it from her own fields she must get it from foreign fields. If she cannot buy it from her own citizens she must buy it from foreigners.

Regarding Mexico, we are told that the Mexican fields are doomed. It must be admitted that the situation there is serious, but although I personally believe that the Mexican production will be as great ten years from now as it is today we cannot safely, as American citizens, disregard the possibility that the Mexican production may fall to an insignificant total, at least temporarily, and that Mexico may disappear as a real petroleum factor until new Mexican fields are discovered.

Mexico last year produced 23½ per cent. of the world's total production of petroleum. If Mexico drops out, what will be the effect on the petroleum situation? What will be the effect upon the United States? Can you cut off a quarter or a fifth of the world's production without placing a strain upon the petroleum market of the United States?

Only Four Months' Supply

A large part of the Mexican production comes to this country. Suppose that source of supply were shut off. Some will point to our large stocks of crude oil in storage. But do you realize that the total quantity of crude oil above ground in this country is only about four months' supply.

If we are to maintain our record of meeting actual requirements we must have a greater co-operation between oil company managers and employes, with steadily improving efficiency in operation; the American public must know that the oil men do not seek success by cutting the other fellow's throat, and this must be brought home by adopting every legal means of co-operation; American oil companies must work together in obtaining a firmer foothold in foreign fields; the American government must back up the oil men of America; the American people must realize that this co-operative effort on the part of their government, of the oil corporations and of the oil men is vital to their security and prosperity.

I can truthfully say that a spirit of co-operation is permeating the American petroleum industry more thoroughly than anyone would have believed possible before the war.

As an independent, I am happy to say it is my opinion that the leaders of the Standard Oil Co. do not want to "freeze out" the independents, and that neither Standard Oil nor the big independents want to oust the smaller independents.

International Problems

International phases of petroleum development form an essential part of our petroleum problems. Let us suppose for a moment that each of the leading nations were to engage in the petroleum business as a governmental activity. Under such circumstances could the diplomacy of the world ward off international conflict? The answer seems obvious.

Why, then, should any nation engage in the petroleum business as a government activity? The danger is the same, except in degree.

Can this danger be avoided if a government becomes a heavy investor in a private oil enterprise? The danger is not removed; it is merely glossed over.

We, as American citizens, expect the firm

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backing of the American government in every legitimate effort to extend American interests abroad. We expect other governments to afford similar backing to their nationals. If each government takes a square stand against the invasion of the rights of others and in defense of fair dealing, there will be no international irritation, and industry of all sorts will prosper.

Commodore J. C. Donnell, president, Ohio Oil Co., aroused many memories among his hearers with an address essentially as follows:—

REMINISCENCES

By Com. J. C. Donnell

"That $948,000,000 will have to be expended in 1922 on productive oil acreage and well operations, if this country is to maintain its present oil production," is a statement made by J. C. Donnell, president of the Ohio Oil Co., in his address at the annual dinner of the American Petroleum Institute, Congress Hotel, Chicago, December 8.

"The present daily gross production of the United States is approximately 1,300,000 barrels," the speaker said, "and by reason of raising this oil there is a drainage per year of 135,415 acres; so that there must be acquired and operated during the year 1922 a like amount of productive acreage to maintain present production, the cost of acquiring which, including royalty, drilling, lifting and wildcatting, will represent a total outlay of $948,000,000.

"The outlook for the oil industry for the year 1922, with particular reference to production, is fairly bright. It is a well known fact that a successful year in all branches of the business is dependent primarily upon the maintenance of production, and the only basic principle which can be consistently applied in estimating future production for a given period is in the nature of a calculation as to the productive average necessary to be acquired during that period to maintain present production; or in other words, to offset the daily drainage on present producing territory."

Has Drilled 42,000 Wells

Mr. Donnell pointed out that his estimate of the acreage necessary to maintain sufficient production to supply requirements is based on his past experience in the important oil fields in which he has drilled and managed the operation of 42,000 wells. He recounted many reminiscences of the early days of the oil business, recalling the Little Porter-Moreland refinery which was in operation at Titusville, Pa., in 1872, at which time practically the entire output of crude oil was coming from the Oil Creek field; also, the Bradford and Allegheny County, New York, excitement, in 1876, and the drilling of the Faurot well at Lima, O., marking the inception of the Trenton rock field. Up to this time, he said, very little had been known of geology and while several attempts were made by geologists to locate new fields in the Trenton rock, they were unsuccessful and the more prolific spots within the defined area of this structure were the results of actual tests with the drill. From 1889 until 1894 the regular market price for this crude oil was 15 cents per barrel at the well and that part of the territory which was most productive returned to the operator a fair margin of profit even at that price. In 1895 the market price increased very rapidly until it reached $1.50 per barrel. He stated that geology did not play an important part in the development of the Illinois oil field.

Mr. Donnell said that geology has played an important part in the development of the Wyoming field. On account of the formations outcropping as they do, an intelligent, experienced geologist is most essential to the successful carrying on of operations, he said. In the Rocky Mountain district 248 structures have been tested at a cost of $83,000,000, on 41 of which oil or gas has been discovered representing an expenditure of $63,000,000, while the 207 unsuccessful ventures entailed a net loss of $20,000,000.

Regarding the Ranger and Stephens County, Texas, oil development in 1918, he said, "companies and individuals rushed in, paid exorbitant prices for leases and subsequently suffered heavy losses as a result of the rapid decline in production."

"The new pools at El Dorado, Arkansas; Haynesville, North Louisiana, and Mexia, Central Texas, are the most recent additions to the country's oil producing territory," he said, "and while prospects at present seem quite favorable, operations there have not been under way for a sufficient length of time to justify an intelligent estimate on the future output."

The interest in the address of the next speaker was international, for he was Sir John Cadman, recently the director of the Petroleum Department of the British Government, and now chief technical adviser to the Anglo-Persian Oil Co., Ltd., the man who, more than any other, has been and is intimately in touch with the petroleum policy of Great Britain. The notable visitor had a message of real importance; in large part he spoke as follows:—

AS JOHN BULL VIEWS IT

By Sir John Cadman

No industry in the history of mankind has shown such phenomenal growth, and no industry contributes more to modern civilization than the petroleum industry. The search for minerals dates back to time immemorial, and is as old as history itself; but tonight we find ourselves co-workers in a new branch of engineering science of paramount importance, and upon our shoulders rests a grave responsibility. Petroleum is today awakening and sustaining enormous public interest, and rightly so. This unprecedented growth is mainly due to the untiring and unremitting efforts, indomitable perseverance and enterprise exhibited by the pioneers of your great country.

Coming from the other side one cannot fail to be impressed with the great activity and industry of the United States, as contrasted with conditions which exist in stricken Europe today. To me this contrast is more striking in the petroleum industry than in any other. Take Russia, for instance. The renowned Baku

Sir John Cadman

fields, one of the most extensive and prolific oil areas in the world, is fast going to wreck and ruin.

The situation in the other petroleum centers of Europe is brighter, although leaving much to be desired. The Roumanian fields, which were partially obliterated in 1916 in the interest of the allied cause, are slowly recovering, despite the enormous handicaps with which the industry is faced. Chief of these are transportation, which is completely demoralized, the absence of storage facilities, and the insuperable difficulties of getting materials into the fields. In Galicia also, although not destroyed by the war, the industry has become almost stagnant through lack of materials.

Now that the war is over it is not unnatural that government organizations created to control industry should cling, or attempt to cling, to these industries, and herein lies a danger. An unmistakable sign of the times is the movement of certain governments to take upon themselves state exploitation of petroleum lands or to join in partnership with others for that purpose. I somehow think that this prevailing tendency to acquire control in one form or another over industry may be due to the association or relationship of the British Government with the Anglo-Persian Oil Co. And as there has been so much misunderstanding and misrepresentation in connection with this matter, I may be pardoned if I digress for a moment to stating the facts of the case.

Anglo-Persian Co.

The Anglo-Persian Oil Co., to which company I became attached on my return to England, was formed in 1909 to take over and exploit certain concessions which had been acquired in 1901 by a Mr. D'Arcy. Prior to that time the concessions had been freely hawked all over the world, and had been turned down by those then interested in petroleum. Mr. D'Arcy, however, personally met with little or no success and as a last resort set up the Anglo-Persian Oil Co., which continued to explore the property. The company, after an uphill fight, met with a certain measure of success, and in 1913 it required additional capital to carry on its work. At this period money was not easy to procure for oil ventures. An attempt was made to sell to the British Naval Department a certain supply of fuel oil and to secure payment in advance. In the discussion which followed concerning a proposed long time contract, it was necessary for the Naval Department to assure itself that the supply of oil would be forthcoming before agreeing to any such payment; and with this object in view a small naval commission was sent to Persia to investigate the source of supply. I happened to be one of the technical members of the commission. The result of the inquiry was satisfactory and the terms of the contract agreed.

It then became necessary to find some security for the financial advances to be made, and the plan was hit upon of increasing the capital of the company, and allotting to the British Treasury ordinary shares for these funds. Two government directors were appointed to the board, but it was agreed that these directors were not to interfere in any shape or form with the commercial policy or management of the company. This arrangement was made in 1914 and the position is the same today. The government still has its contract for fuel oil with the company, is still an ordinary shareholder, but has no voice in the management of the company. The reason for this arrangement was a full recognition by both sides of the inadvisability of government trading, and the inability of government to properly administer a commercial concern. I cannot help feeling, however, that the company has suffered from the presence of their sleeping partners, by the inference, which is wholly incorrect, that the government exercises an influence over the commercial affairs of the company. The operations of the company have been very successful, but these have been achieved not because of, but in spite of, the government holdings. I have even seen it stated that petroleum companies outside Great Britain would welcome government control, and the Anglo-Persian Co. is cited as an excellent example.

Royal Dutch-Shell

I have also seen it stated that the British Government has shares in the Royal Dutch-Shell organization, and although this statement has been officially denied, I cannot refrain from referring to the question. Not only has the British Government no interest in this group of companies, either directly or indirectly, but the control and management of this great concern is vested in and the majority holding held by Dutch interests. Such statements are grossly unfair to the Royal Dutch-Shell group, for even with the suggestion of government control the business of the group must be seriously prejudiced.

I wish to reiterate that the British Government has no interest in any petroleum company or organization other than the Anglo-Persian, and in that instance they take no part whatever, directly or indirectly, in the commercial affairs of the company.

Some months ago erroneous statements on these and other questions had received such a state of publicity that I was glad to receive a visit in London from Dr. Manning, who made a special journey to ascertain the truth of these reports. The whole situation was clearly and fully explained to Dr. Manning, who has already made his report to you. The action taken by the American Petroleum Institute to learn the true position was greatly appreciated.

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A. C. Bedford

The Inequity of Government Control in Commerce

Government control and government operation is much the same all the world over. I do not know how far your industries were or are controlled, or are under the influence of your government, but I do know that in England all the industries which were controlled during the war and for some time after the armistice are having a very hard time to bring themselves back to industrial and competitive efficiency. It is not necessary for me to enumerate the many instances where such industries have inherited a government legacy in the form of a whole series of regulatory orders, restraints and impossible conditions. Without the stimulus of war, government control is characterized by wasteful and ill-advised expenditure which is inherent in the system itself. When government takes over large commercial undertakings its influence is soon reflected in increasing costs to the public which it serves or by increased costs of operations, which really amounts to the same thing.

The petroleum industry in its present highly developed state requires the ingenuity and capacity of the great leaders of industry—men who have been trained in business and technique, and for whom political service holds no attraction. If government were to take a hand in the petroleum industry from a commercial point of view, what would be the result? There would be the usual seekers of political favor and management of the industry would fall into the hands of those least competent to insure its efficient administration.

Open Door

Much has been written concerning a so-called "closed door policy" in the British Empire, but even if such a policy were in force it would surely not be difficult to find arguments in its favor, in view of the serious position of the British Empire as regarding petroleum supplies. I should like to state, however, that such a closed door policy is not in force, but where any special consideration has taken place it was inaugurated at a time when the world's oil supplies were in a very different condition than they are today. The problem in the petroleum industry was then not so much a question of new sources of supplies, but how to procure a profitable market for that which was already being produced. In these circumstances it was not unnatural that some form of stimulation of local production should have been resorted to and encouragement extended to local enterprise. The real danger was that certain oil lands might have been taken up by large oil companies and kept unworked in order to maintain prices. This is particularly true of India, where the present regulations date from forty years back.

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H. F. Sinclair

Now, these conditions have changed, and it is becoming increasingly obvious that there is ample scope for the activity of all, irrespective of nationality, in searching for and bringing into use the world's store of petroleum as yet undiscovered. In this effort more capital than any group of capitalists can hope to provide is necessary, and it becomes the duty of all with experience, knowledge and capital to take a hand in the interest of civilization and for the good of mankind. The world requires a conscious effort of good will to put it on its feet, and cheap power produced from cheap petroleum is one of the commodities most needed. The problem which confronts us at the moment is squaring the production of liquid petroleum with the demand. I am not one of those alarmists who predicts an early exhaustion of petroleum supplies, as in the past enterprise has never failed to sooner or later develop and maintain supplies. The economic laws which control supply and demand are incontrovertible, and any attempt to interfere with them would undoubtedly lead to chaos and inefficiency. The open door policy is the only way to permit of this freedom, and it is unfair to charge Great Britain with attempting to close any doors to honest enterprise.

Here let me reiterate that I am in favor of an open door policy, because it gives an unfettered opportunity to knowledge, capital and enterprise in the development of oil fields. In this contention I am not alone, as I am perfectly certain that my countrymen will wholeheartedly join with me in my expression on this point, but do not forget that I am strongly against any form of government commercial control in such development.

You may rest assured that foreign capital for the development of the oil resources of the British Empire is not unwelcome, but bear in mind that the group of countries constituting the British Empire prescribe their own conditions, and if these are construed to be an impediment then it is my conviction that little obstruction will be found in the way to permit the use of foreign capital.

Mesopotamia

Much acrimonious discussion has centered around this word. It is possible that oil fields exist in the newly constructed Irak State, but as yet nothing definite is known of their potential value. Certain claims are known to exist which are said to carry rights or promises from the late Turkish State, and a great controversy has raged in the newspapers upon this subject. But I fail to see signs of any of the claimants entering into the controversy. What is the position then? The ownership of the oil deposits in Mesopotamia will be secured to the Arab state as part of the administrative arrangements under the treaty and mandate. The interests of the Arab state must be carefully safeguarded and are the first charge upon the government which is to exercise the mandate. It is clear that due consideration will have to be given to rights legally secured before the war. Exactly what the rights are can only be considered when the new government is set up—this and this only is the time to discuss these affairs.

The San Remo oil agreement, which has a very definite reference to this area, contains provisions which enable the free access to the Mediterranean of any oil produced within that area, which conditions are destined to be in the best interest of the Arab state. Furthermore, there was nothing in the minds of the framers of that agreement which was against the interests of any other state or nation.

Other speakers scheduled for the occasion of the annual dinner were:—Henry L. Doherty, president, Cities Service Co., on "Some Things We Might Be Doing," and A. C. Bedford, chairman of the board, Standard Oil Co. of New Jersey, on "World's Highways of Trade." The salient features of these two important addresses will appear in these columns later.

IN THE COURTS

Department of Justice Files Brief in Red River Case

WASHINGTON, Dec. 6, 1921.

In view of the fact that the United States Supreme Court in a few days will hear argument son those phases of the Red River oil land case involved in petitions of various interveners, the Department of Justice has filed with the court a long brief sustaining the government's contentions as chief intervener in the dispute between the States of Oklahoma and Texas, which are principally based upon the government's right to lands in the bed of the river either for itself or in behalf of Indians whose lands are in controversy. The boundary question, including the location of the south bank of the river, is not up for discussion at this time.

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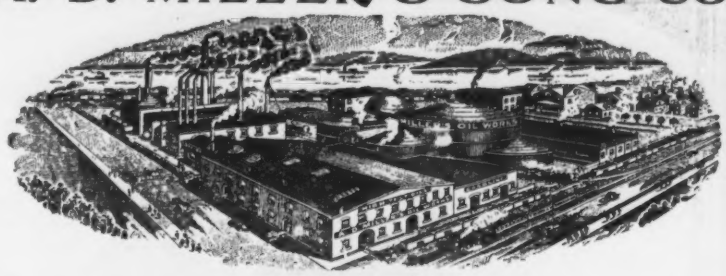

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